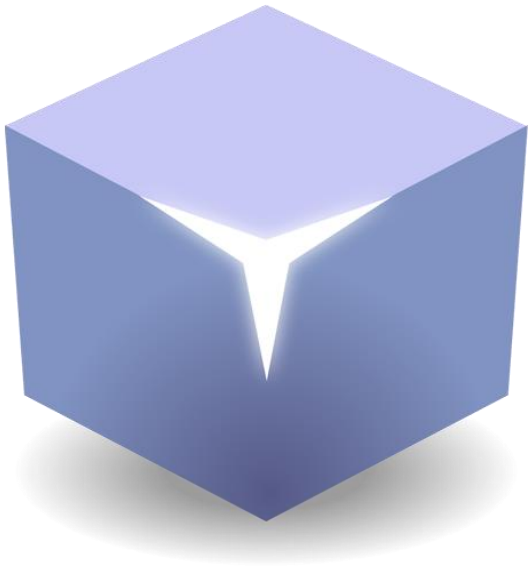

Kyubit Business Intelligence

OLAP analysis - User Manual

Using OLAP analysis features of Kyubit Business Intelligence

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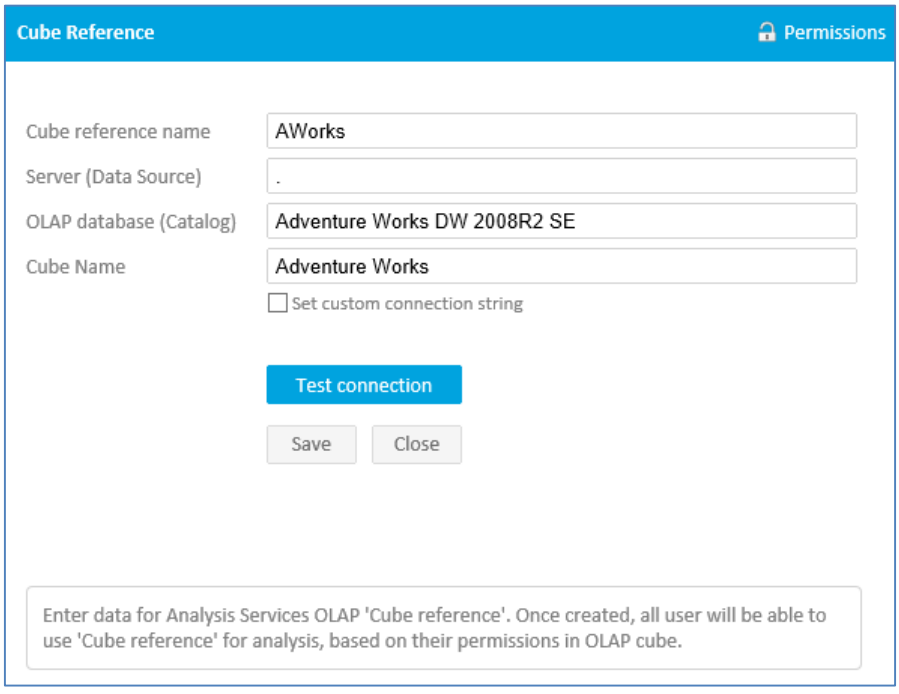
1. OLAP cube references

To start analyzing data using existing OLAP database, SSAS OLAP cube has to be referenced in the Kyubit Business Intelligence application. Once it is referenced it can be reused in different analysis and reports, and used by any users of Kyubit Business Intelligence which has permissions for the same Cube reference. Cube reference just represents central catalogue of all available OLAP cubes to use in Kyubit Business Intelligence. To define Cube reference for certain OLAP cube, MS SQL Analysis Services 2005/2008/2012/2014 has to be installed on the intranet in the same intranet to which Kyubit Business Intelligence server belongs to. While creating Cube reference user has to provide following data:

- Server name(address) with MS SQL Analysis Services
- OLAP Database name
- Cube name
- Cube reference (custom name)



Cube reference could be defined by server/database elements or could defined as custom connection string, so advanced users could add some extra parameters. To assign permissions for other users, select “Permissions” link.

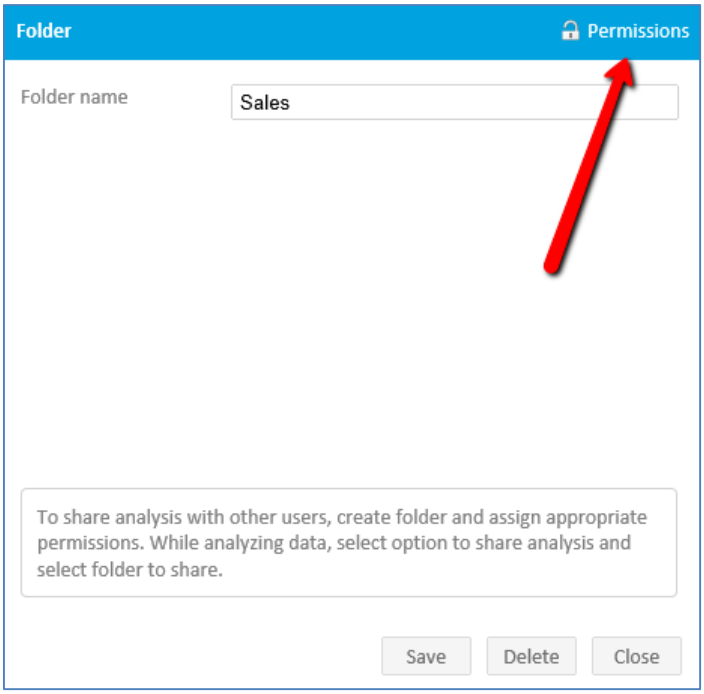
2. Folders

To give other people permissions to see or edit created analysis, analysis have to be connected (shared) with previously created folder. Folder is object that groups all analyses with same Active Directory user/group permissions. Folders could be used to share analysis with common subject or belong to certain business unit or process. Administrator or user with read/write permission on a folder could manage permissions for other Active Directory user/groups.

To see actual data from OLAP data source, user needs permission on SSAS cube level, but to see that certain analysis exists in Kyubit Business Intelligence application, user needs permission also in Kyubit Business Intelligence folder with given analysis.

To create new folder and define folder permissions, follow these steps:

- On Main menu select „Create Folder“ button on the right side of screen.
- Set folder name and click “Save”
- To define permissions on folder, select “permissions” and choose required Active Directory users and groups, and finally select which access level should be given “Read Access” or “Read/Write Access”.


Folder
Permissions
Folder name
Sales
To share analysis with other users, create folder and assign appropriate permissions. While analyzing data, select option to share analysis and select folder to share.
Save
Delete
Close

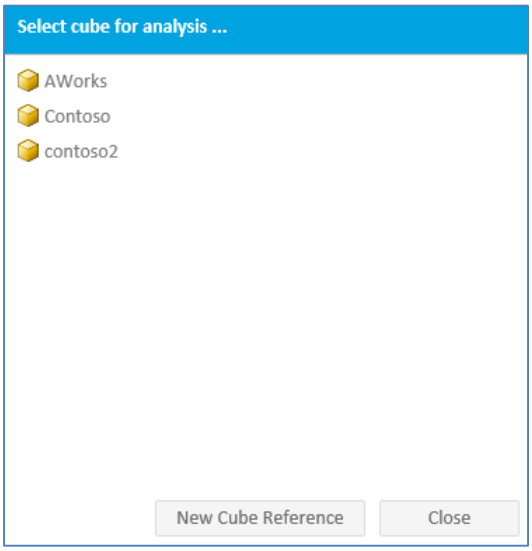
2.1. My Analysis

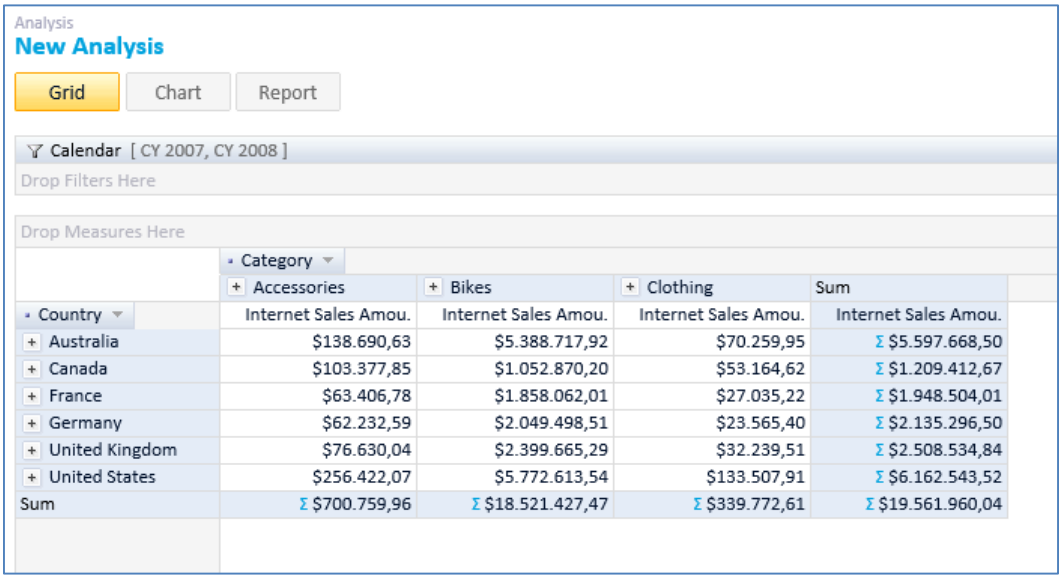
By default, all users have “My Analysis” folder. When saving analysis, analysis is automatically saved in users “My Analysis” folder, which is visible only to belonging user. “My Analysis” folder cannot be deleted or renamed. To move certain analysis to other folder, analysis has to be shared (connected) to that particular folder. Once shared to folder, analysis is available to the group of users which have access permissions to view the content of the folder.

3. OLAP Grid Analysis

3.1. Start Analysis

To start analysis, click on the “Start Analysis” on the Kyubit Business Intelligence page. Note, that if you have only one cube reference, Grid Analysis screen will immediately become visible and ready for analysis. If there are more cube references, user will be asked for which OLAP cube to start the analysis. If desired OLAP cube is not on the cube reference list, select “New Cube Reference” and create new cube reference.

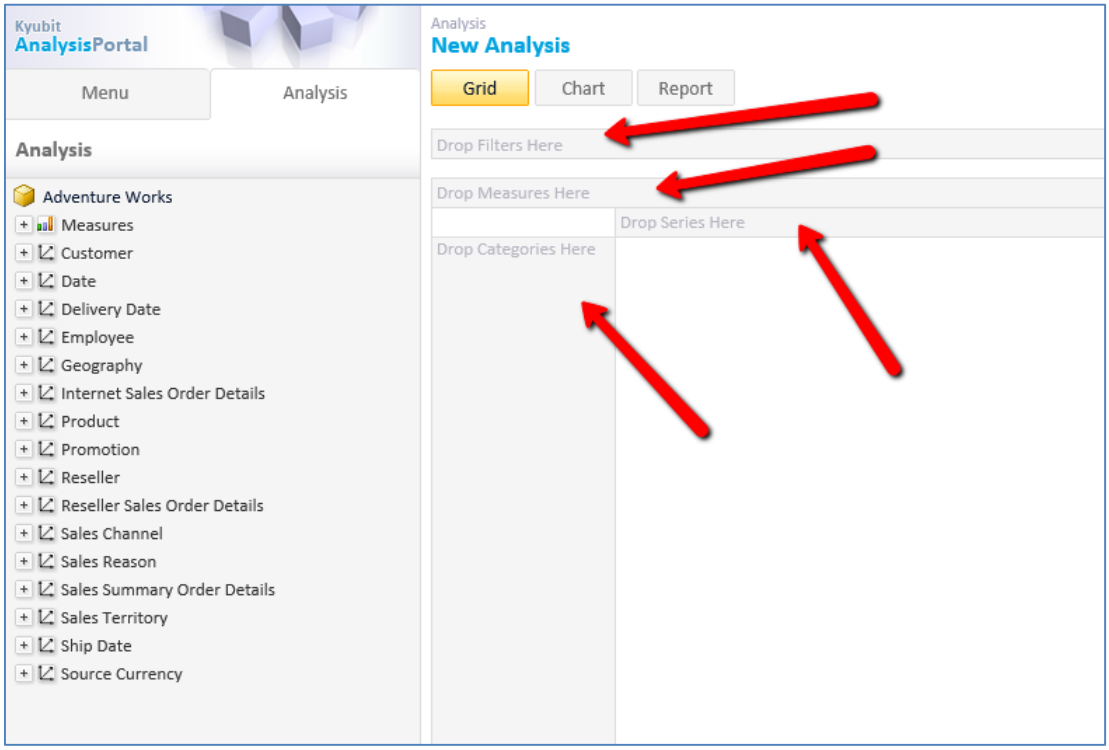




3.2. Grid Analysis concepts

Most common way of OLAP data analysis in Kyubit Business Intelligence application is “Grid Analysis”. Drag-and-drop measures, hierarchies/levels from OLAP cube tree structure to grid areas on the right side to analyze OLAP data. Following areas exist for grid analysis:

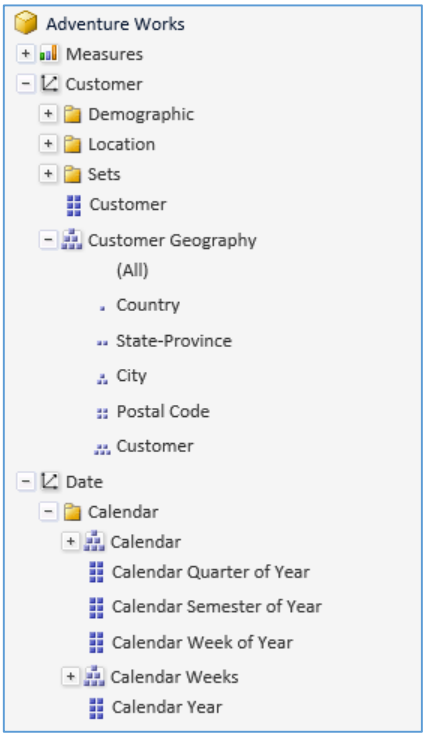
- Cube structure Tree)
- Categories area(Axis)
- Series area (Axis)
- Measures area
- Filters area
- Values area



3.2.1. Cube Tree Structure

Every OLAP cube consists of measures, dimensions and hierarchies. Cube structure is defined in OLAP database and within Kyubit Business Intelligence is displayed using tree view. Analysis is performed by dragging desired elements.

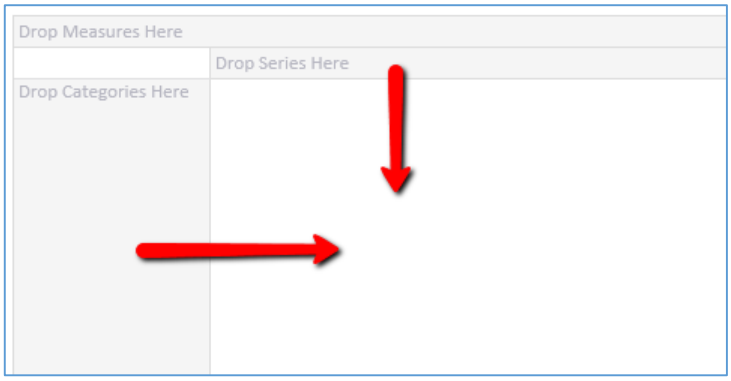
(Measures, dimension hierarchies) to appropriate areas on the right.



3.2.2. Categories and series

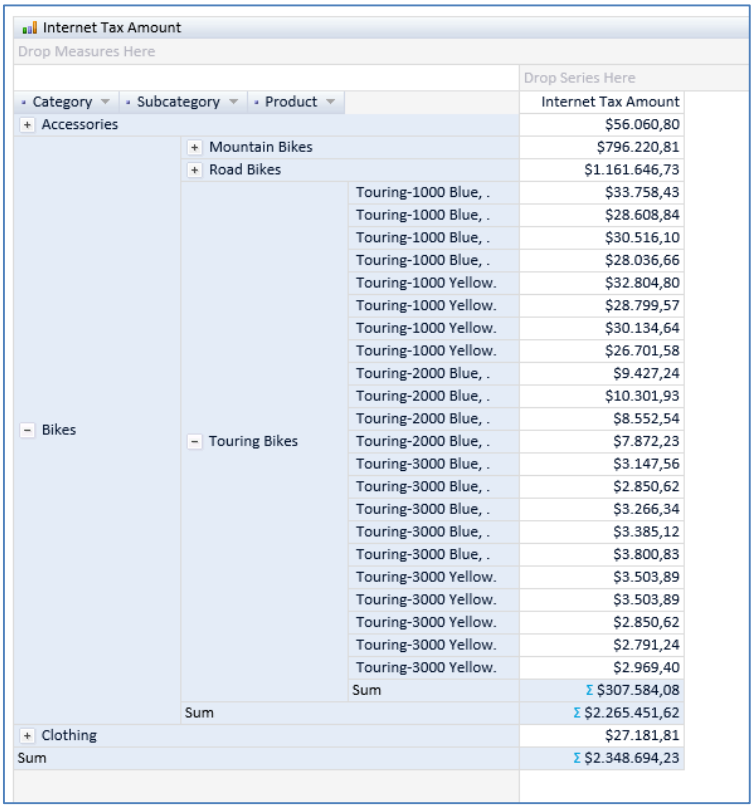
To see some measure over some entity structure (dimension), drag OLAP dimension hierarchies from the OLAP tree structure, visualized with the tree view on the left side of the screen, to the Categories and/or Series area. For example, Countries dimension hierarchy could be placed on Category axis and Product dimension hierarchy on the Series axis. Corresponding values from OLAP cube will appear on the values area in the center of the screen.

To remove dimension hierarchy from analysis, drag dimension hierarchy from Categories or Series area to cube tree or select dimension hierarchy (one click) and press Delete key.



3.3. Expand member, single dimension hierarchy

If we drag dimension hierarchy that consist of several levels (For example, Geography [Country - State - City - Customer] or Calendar [Year - Semester - Quarter - Month - Week - Day]), with each member on the Categories or Series area will be displayed collapse/expand option, which would expand values to show values for the next hierarchy level members. For example, with a few clicks, we would see analysis for all countries, drill down USA to states, drill down California to cities and finally find values for San Francisco. At the same analysis, it is possible to drill down Categories and Series dimension hierarchies.



Internet Tax Amount

Drop Measures Here

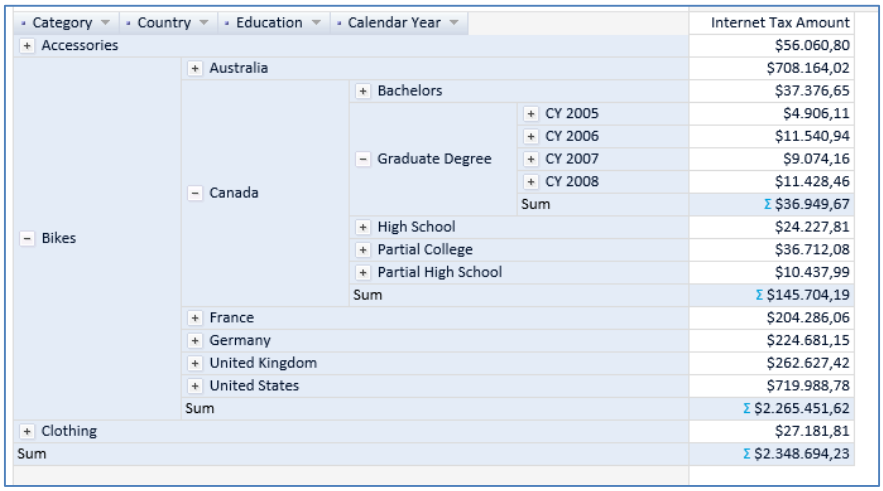
Drop Series Here

Category	Subcategory	Product	Internet Tax Amount
+ Accessories			$56.060,80
	+ Mountain Bikes		$796.220,81
	+ Road Bikes		$1.161.646,73
		Touring-1000 Blue, .	$33.758,43
		Touring-1000 Blue, .	$28.608,84
		Touring-1000 Blue, .	$30.516,10
		Touring-1000 Blue, .	$28.036,66
		Touring-1000 Yellow.	$32.804,80
		Touring-1000 Yellow.	$28.799,57
		Touring-1000 Yellow.	$30.134,64
		Touring-1000 Yellow.	$26.701,58
		Touring-2000 Blue, .	$9.427,24
		Touring-2000 Blue, .	$10.301,93
		Touring-2000 Blue, .	$8.552,54
− Bikes	− Touring Bikes	Touring-2000 Blue, .	$7.872,23
		Touring-3000 Blue, .	$3.147,56
		Touring-3000 Blue, .	$2.850,62
		Touring-3000 Blue, .	$3.266,34
		Touring-3000 Blue, .	$3.385,12
		Touring-3000 Blue, .	$3.800,83
		Touring-3000 Yellow.	$3.503,89
		Touring-3000 Yellow.	$3.503,89
		Touring-3000 Yellow.	$2.850,62
		Touring-3000 Yellow.	$2.791,24
		Touring-3000 Yellow.	$2.969,40
		Sum	Σ $307.584,08
	Sum		Σ $2.265.451,62
+ Clothing			$27.181,81
Sum			Σ $2.348.694,23

3.4. Expand member, different dimension hierarchy

To expand values and show members of other dimension hierarchy, drag all dimension hierarchies to the same axis (Categories or Series) and click/expand desired members. It is possible to drag multiple dimension hierarchies to the same axis and on that way expand values from one hierarchy to another. For example, we could first drag Countries hierarchy and then Product hierarchy. On that way first we would see values for all countries, and then by expanding USA, we would see Product categories sold in USA.

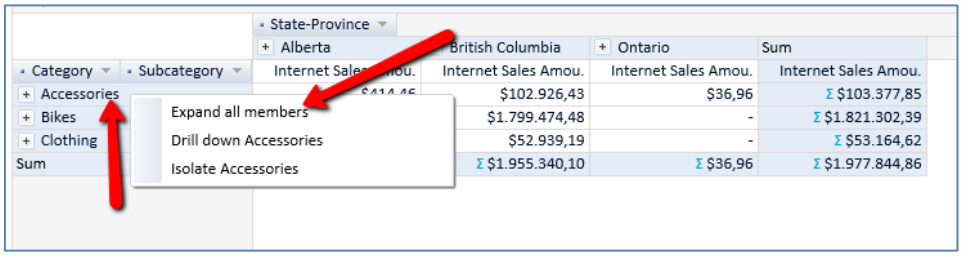
Expanding members with single or different dimension hierarchies could be combined and performed on both axes separately within same analysis, giving powerful and fast option to analyze data from OLAP cube.



Category	Country	Education	Calendar Year	Internet Tax Amount
+ Accessories				$56.060,80
	+ Australia			$708.164,02
		+ Bachelors		$37.376,65
			+ CY 2005	$4.906,11
			+ CY 2006	$11.540,94
		− Graduate Degree	+ CY 2007	$9.074,16
	− Canada		+ CY 2008	$11.428,46
			Sum	Σ $36.949,67
− Bikes		+ High School		$24.227,81
		+ Partial College		$36.712,08
		+ Partial High School		$10.437,99
		Sum		Σ $145.704,19
	+ France			$204.286,06
	+ Germany			$224.681,15
	+ United Kingdom			$262.627,42
	+ United States			$719.988,78
	Sum			Σ $2.265.451,62
+ Clothing				$27.181,81
Sum				Σ $2.348.694,23

3.5. Expand all/Collapse all members

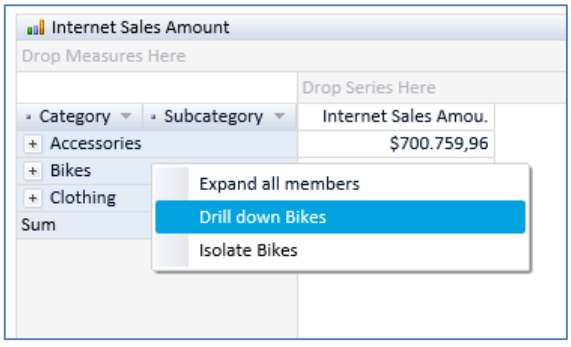
To expand all sibling members of a particular hierarchy, right click any of sibling members and select “Expand all”. On the same way select “Collapse all members” to collapse all sibling members. Exapand all/Collapse all members is available only on categories axis.

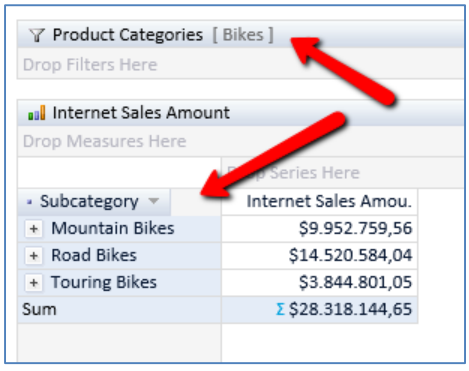


Category	Subcategory	Alberta	British Columbia	Ontario	Sum
		Internet Sales Amou.	Internet Sales Amou.	Internet Sales Amou.	Internet Sales Amou.
Accessories	Bike Racks	$240,00	$6.840,00	-	Σ $7.080,00
	Bike Stands	-	$5.088,00	-	Σ $5.088,00
	Bottles and Cages	$27,96	$7.645,21	$9,99	Σ $7.683,16
	Cleaners	-	$1.160,70	-	Σ $1.160,70
	Fenders	$21,98	$8.748,04	$21,98	Σ $8.792,00
	Helmets	$34,99	$28.061,98	-	Σ $28.096,97
	Hydration Packs	-	$6.158,88	-	Σ $6.158,88
	Tires and Tubes	$89,53	$39.223,62	$4,99	Σ $39.318,14
	Sum	Σ $414,46	Σ $102.926,43	Σ $36,96	Σ $103.377,85
Bikes	Mountain Bikes	$2.294,99	$613.145,41	-	Σ $615.440,40
	Road Bikes	$14.022,43	$921.593,86	-	Σ $935.616,29
	Touring Bikes	$5.510,49	$264.735,21	-	Σ $270.245,70
	Sum	Σ $21.827,91	Σ $1.799.474,48	-	Σ $1.821.302,39
Clothing	Caps	$17,98	$2.157,60	-	Σ $2.175,58
	Gloves	$24,49	$6.073,52	-	Σ $6.098,01
	Jerseys	$103,98	$21.773,77	-	Σ $21.877,75
	Shorts	$69,99	$16.237,68	-	Σ $16.307,67
	Socks	$8,99	$791,12	-	Σ $800,11
	Vests	-	$5.905,50	-	Σ $5.905,50
	Sum	Σ $225,43	Σ $52.939,19	-	Σ $53.164,62
Sum		Σ $22.467,80	Σ $1.955.340,10	Σ $36,96	Σ $1.977.844,86

3.6. Drill down member

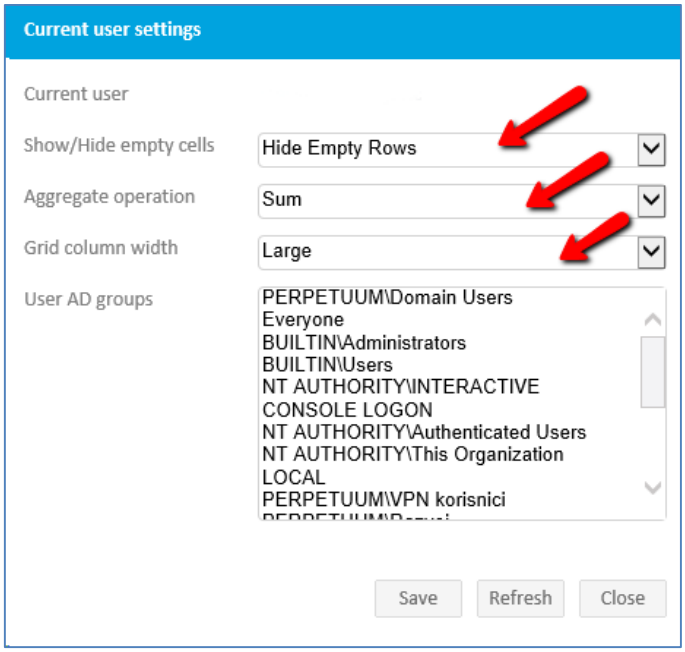
On a category axis it is possible to drill down certain member if it is a root category level member. Right click member and select “Drill down Bikes”. “Bikes” member will be automatically added to filters and level bellow will show members related to selected “Bikes” member.





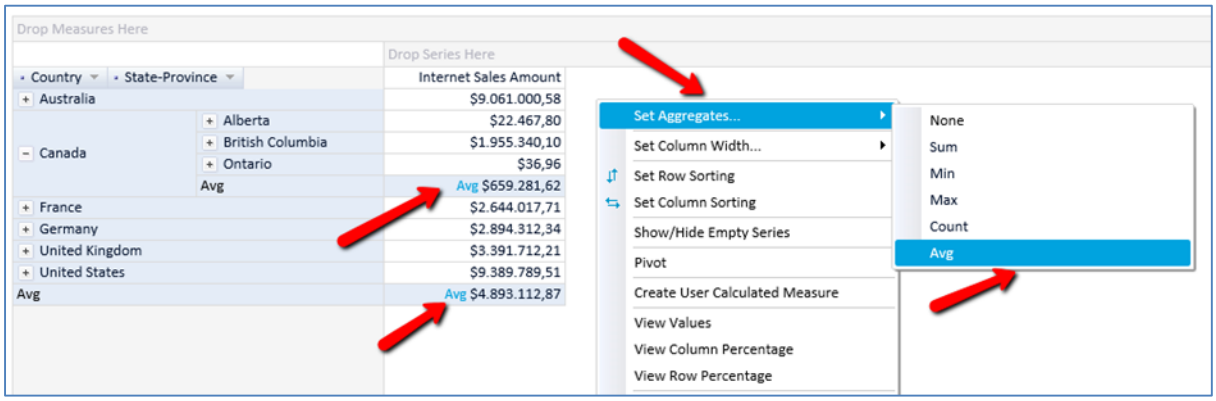
3.7. User analysis settings

Every user could define his own preference while analyzing OLAP data with Kyubit Business Intelligence application. Every time user starts new analysis, user settings will be applied. Select “User Settings” available in the top-right corner of the screen.



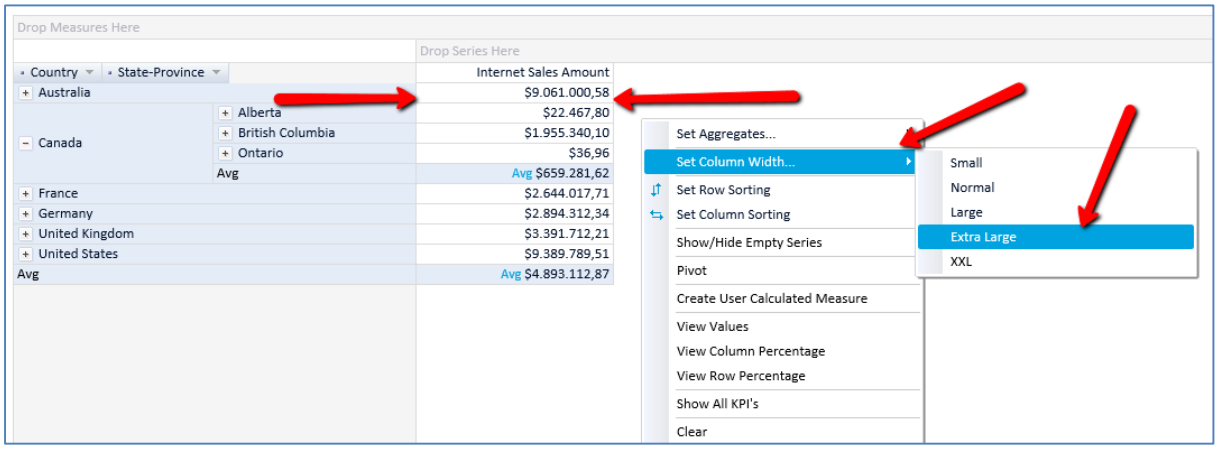
3.7.1. Grid analysis Aggregates

User can chose which aggregate function to apply and show while in grid analysis view. To select aggregate function, right-click grid analysis area and select “Set Aggregates...”



3.7.2. Show/hide empty rows

In some situations while in grid analysis, it will be convenient to customize grid column width for best grid visual perception. User can select five different column with parameters, from “Small” to “XXL”. Column width will be saved together with analysis.



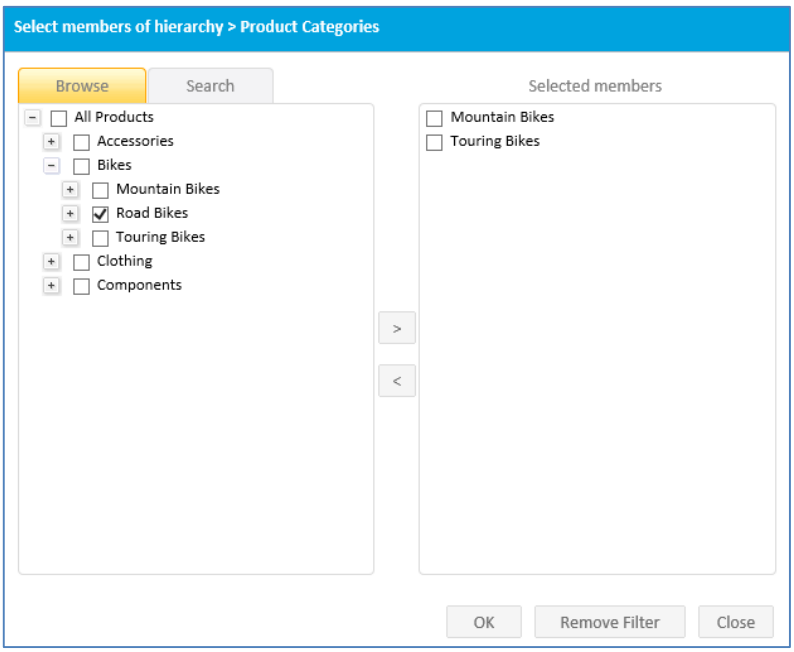
3.8. Filtering grid analysis data

Drag-and-drop dimension hierarchy to filters area and narrow analysis to a particular point of interest. Multiple filters could be selected to existing analysis. By dragging dimension hierarchies to Filters area, we prepare grid to accept filter parameters. Finally, to set filters, browse through dimension hierarchy or search for dimension hierarchy members to isolate analysis data.

Dimension hierarchies could be dragged to filters area from the cube tree or, if exists, from the dimension hierarchies that are already placed to categories or series area.

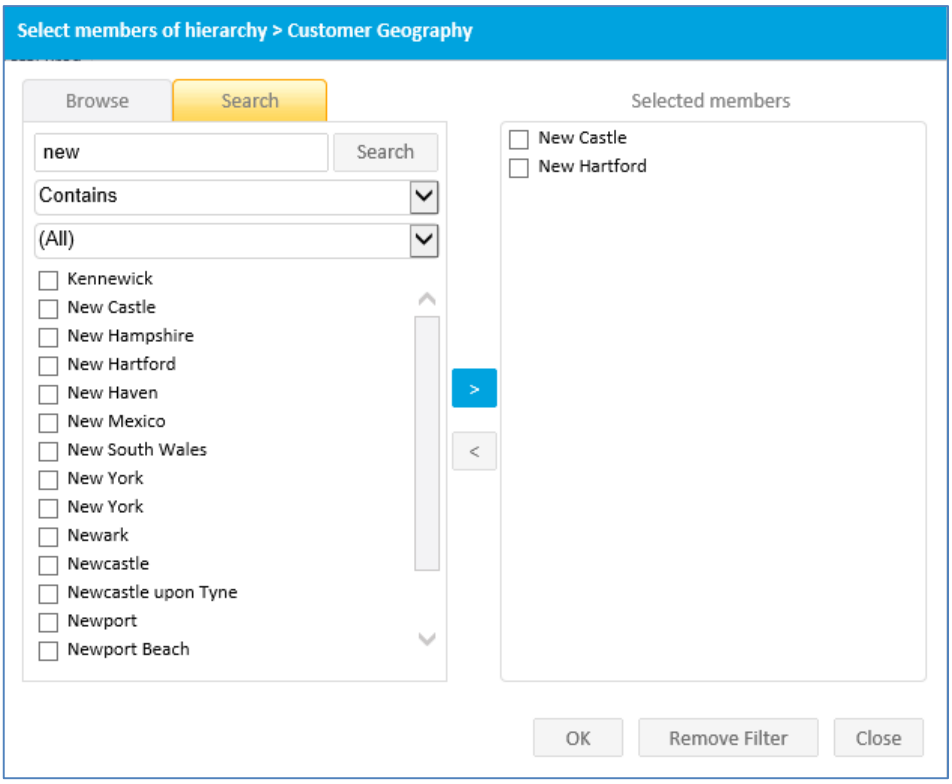
For example, we could add Calendar dimension hierarchy to filters area and select CY2003 which would narrow analysis and show values only for Calendar Year of 2003 for the given dimension hierarchies on the Categories and Series area.

To remove filter from analysis, drag filter from Filters area to cube tree or select filter (one click) and press Delete key.



3.8.1. Search Members

To find particular member to add to analysis filters, add dimension hierarchy to filters and select “Search” tab. Combine hierarchy members browsing and member search to find exact members for analysis filter. Type in part of the member name, select appropriate selector (contains, starts with, ends with, etc.) and select of dimension hierarchy level and narrow scope that will be searched to find members.



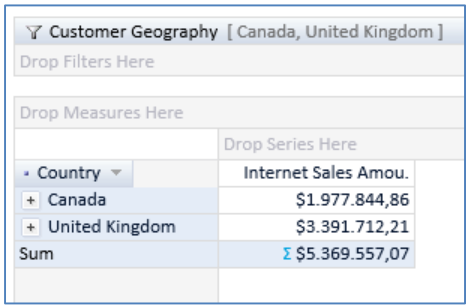
3.8.2. Isolating

When narrowing our analysis to particular point of interest, we could drag dimension hierarchies to Filters area, but more practical and faster way to narrow analysis and reduce number of values shown in analysis is Isolating.

While analyzing data, it is possible to select certain members on Categories or Series axis (Column or Row). Member and all of its children will be selected and highlighted in yellow color. In that moment, it is possible to click on the Isolate option in the analysis toolbar and instantly selected member and all of its children will be isolated for further analysis. This means, members not isolated on that axis will be removed from further analysis. It is possible to select multiple members on Categories or Series axis (Columns or Rows) at the same time by holding left shift button.

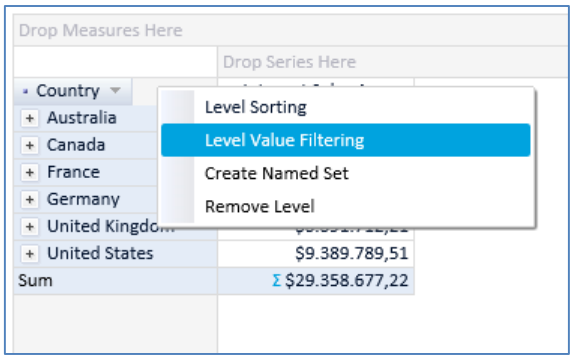
After isolating, Filters area will be refreshed with actual filter members as a result of isolating. Isolating is just another way of setting up analysis filters and can be used together in the same analysis.

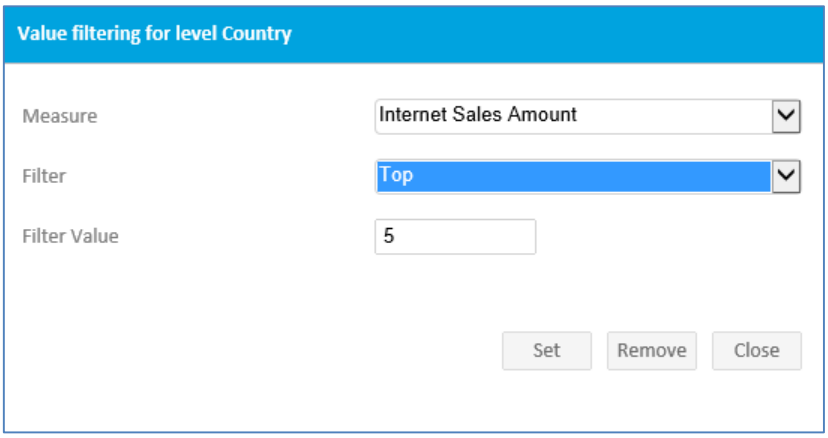
Country	Internet Sales Amou.
Australia	$9.061.000,58
Canada	$1.977.844,86
France	$2.644.017,71
Germany	$2.894.312,34
United Kingdom	$3.391.712,21
United States	$9.389.789,51
Sum	Σ $29.358.677,22

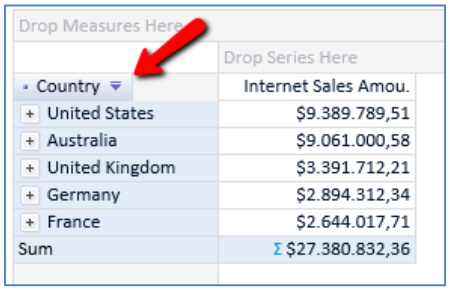


3.8.3. Dimension level value filtering

For every added dimension level on grid analysis, it is possible to define level filtering that would narrow number of level members to show in grid. Click level arrow and select “Level value filtering” from level context menu. Level value filters could be applied using any cube defined measure, using desired query selector (Top, Top Percent, Bottom, Bottom Percent, Is Higher, Is Between, etc.) and specified filter value. Levels with defined “Level value filtering” will show different blue arrow on grid axis.

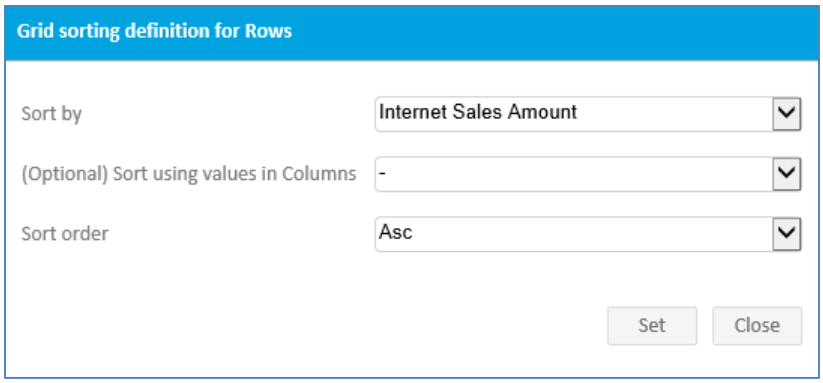


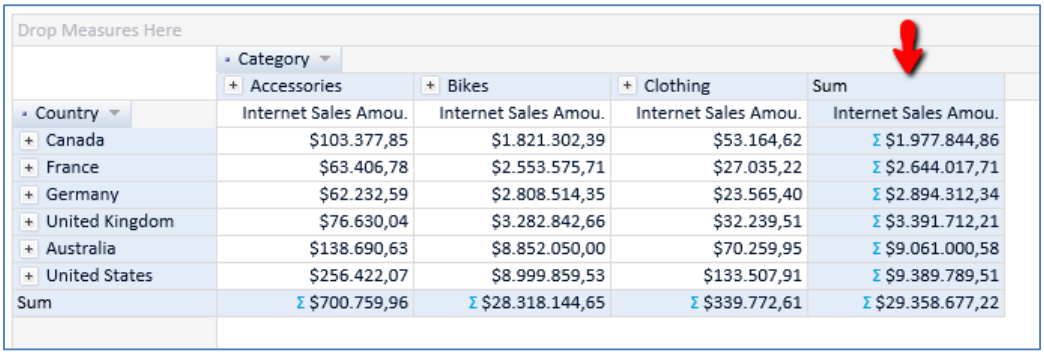




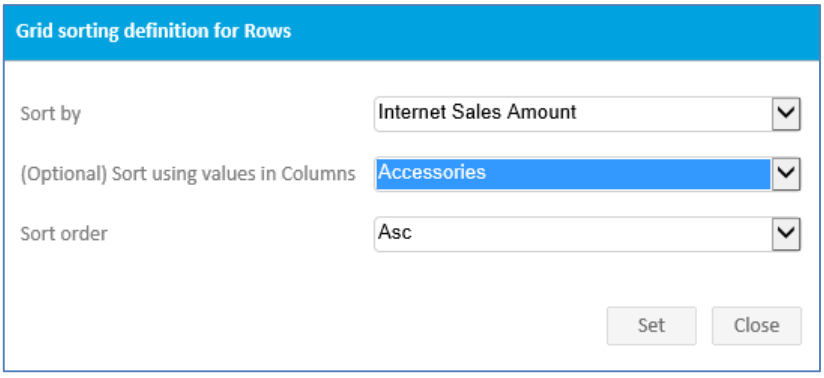
3.9. Sorting all members on grid axis

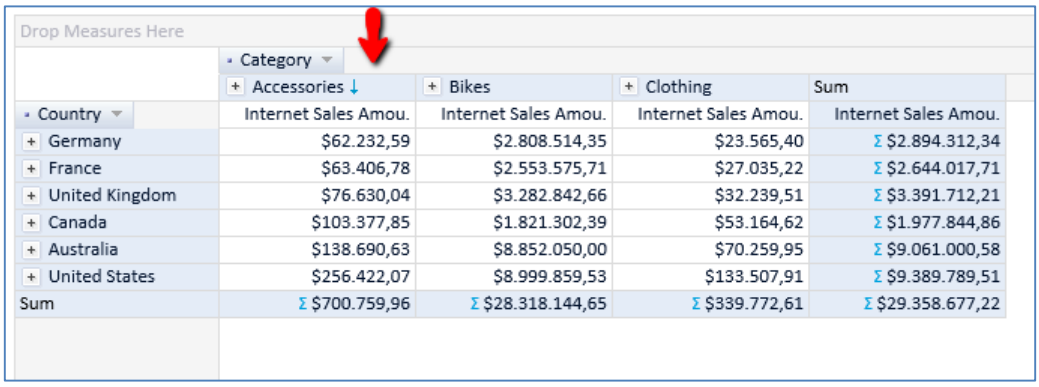
Grid analysis data could be sorted on axis level and on particular dimension level added to grid analysis. To sort all members on an axis, right click on grid analysis and select “Set Row Sorting” or “Set Column Sorting”. Choose to sort by one of added measures or alphabetically. If you wish to sort data using measure values, optionally it is possible to select member on opposite axis upon which values sorting will be perform. If opposite member is not selected, sorting will be done by measure total on opposite axis.





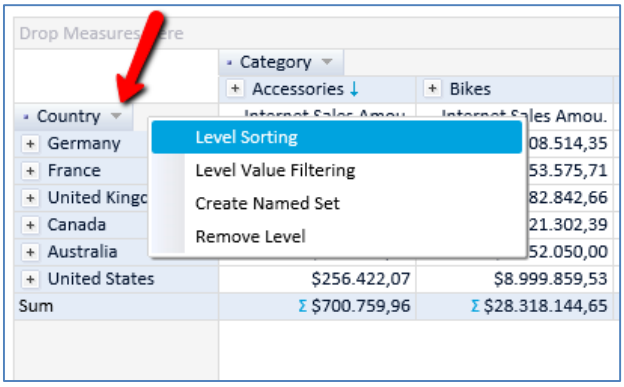
(Sorting with selected member on opposite axis)





3.10. Sorting members on a particular dimension level

Grid analysis has options to set sorting for each added dimension level individually. For example, one level could be sorted for one measure values, other for different measure values and third could be sorted alphabetically. Click the arrow beside added dimension level, level context menu will appear and select “Level sorting”.



On a picture bellow, we see, “Country” level members are sorted by “Accessories” ascending, but members of “State-Province” are sorted by “Bikes” in descending order. It is possible to create sorting for every added dimension level on both axis.

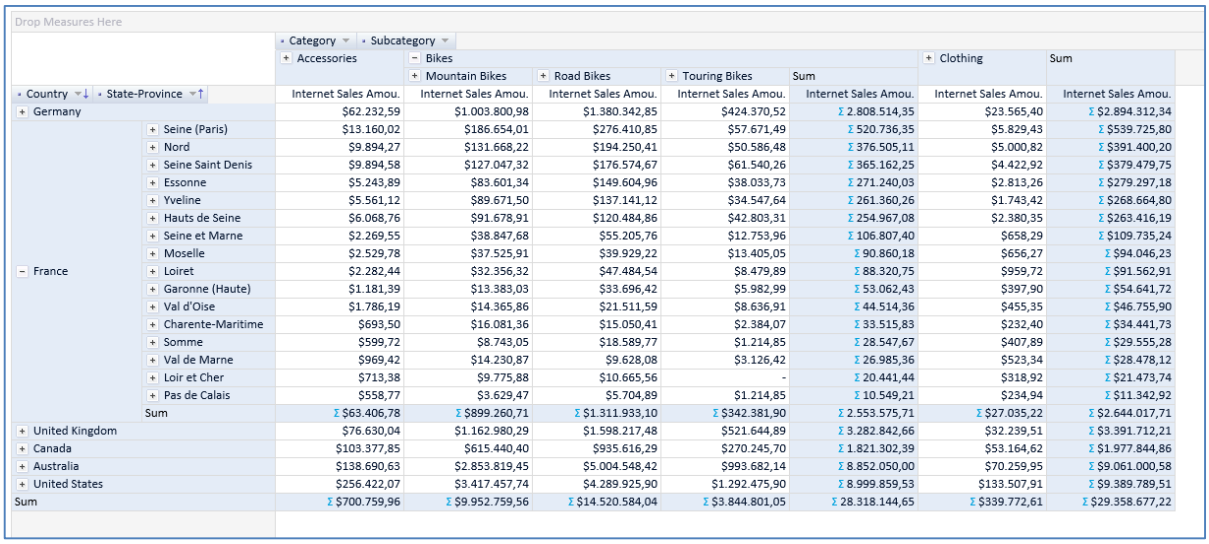
		Category: Accessories	Bikes	Clothing	Sum
Country	State-Province	Internet Sales Amou.	Internet Sales Amou.	Internet Sales Amou.	Internet Sales Amou.
Germany		$62.232,59	$2.808.514,35	$23.565,40	Σ $2.894.312,34
	Seine (Paris)	$13.160,02	$520.736,35	$5.829,43	Σ $539.725,80
	Nord	$9.894,27	$376.505,11	$5.000,82	Σ $391.400,20
	Seine Saint Denis	$9.894,58	$365.162,25	$4.422,92	Σ $379.479,75
	Essonne	$5.243,89	$271.240,03	$2.813,26	Σ $279.297,18
	Yveline	$5.561,12	$261.360,26	$1.743,42	Σ $268.664,80
	Hauts de Seine	$6.068,76	$254.967,08	$2.380,35	Σ $263.416,19
	Seine et Marne	$2.269,55	$106.807,40	$658,29	Σ $109.735,24
	Moselle	$2.529,78	$90.860,18	$656,27	Σ $94.046,23
France	Loiret	$2.282,44	$88.320,75	$959,72	Σ $91.562,91
	Garonne (Haute)	$1.181,39	$53.062,43	$397,90	Σ $54.641,72
	Val d'Oise	$1.786,19	$44.514,36	$455,35	Σ $46.755,90
	Charente-Maritime	$693,50	$33.515,83	$232,40	Σ $34.441,73
	Somme	$599,72	$28.547,67	$407,89	Σ $29.555,28
	Val de Marne	$969,42	$26.985,36	$523,34	Σ $28.478,12
	Loir et Cher	$713,38	$20.441,44	$318,92	Σ $21.473,74
	Pas de Calais	$558,77	$10.549,21	$234,94	Σ $11.342,92
	Sum	Σ $63.406,78	Σ $2.553.575,71	Σ $27.035,22	Σ $2.644.017,71
United Kingdom		$76.630,04	$3.282.842,66	$32.239,51	Σ $3.391.712,21
Canada		$103.377,85	$1.821.302,39	$53.164,62	Σ $1.977.844,86
Australia		$138.690,63	$8.852.050,00	$70.259,95	Σ $9.061.000,58
United States		$256.422,07	$8.999.859,53	$133.507,91	Σ $9.389.789,51
Sum		Σ $700.759,96	Σ $28.318.144,65	Σ $339.772,61	Σ $29.358.677,22

3.11. Pivot

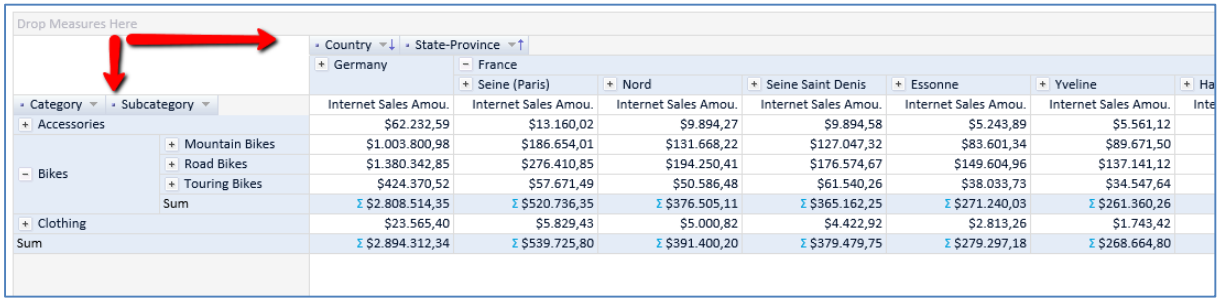
Anytime while analyzing data in Kyubit Business Intelligence, user has possibility to switch dimension hierarchies on the Categories and Series axis. For many reasons, switching axes could be very practical while

analyzing and visualizing data, especially when working with Chart Analysis and switching back and forth with Grid Analysis.

To select Pivot action, right click on the empty Grid area. After menu pops up, click on the Pivot action.



Drop Measures Here		Category	Subcategory					
		Accessories	Bikes				Clothing	Sum
			Mountain Bikes	Road Bikes	Touring Bikes	Sum		
Country ↓	State-Province ↑	Internet Sales Amou.	Internet Sales Amou.	Internet Sales Amou.	Internet Sales Amou.	Internet Sales Amou.	Internet Sales Amou.	Internet Sales Amou.
Germany		$62.232,59	$1.003.800,98	$1.380.342,85	$424.370,52	Σ 2.808.514,35	$23.565,40	Σ $2.894.312,34
	Seine (Paris)	$13.160,02	$186.654,01	$276.410,85	$57.671,49	Σ 520.736,35	$5.829,43	Σ $539.725,80
	Nord	$9.894,27	$131.668,22	$194.250,41	$50.586,48	Σ 376.505,11	$5.000,82	Σ $391.400,20
	Seine Saint Denis	$9.894,58	$127.047,32	$176.574,67	$61.540,26	Σ 365.162,25	$4.422,92	Σ $379.479,75
	Essonne	$5.243,89	$83.601,34	$149.604,96	$38.033,73	Σ 271.240,03	$2.813,26	Σ $279.297,18
	Yveline	$5.561,12	$89.671,50	$137.141,12	$34.547,64	Σ 261.360,26	$1.743,42	Σ $268.664,80
	Hauts de Seine	$6.068,76	$91.678,91	$120.484,86	$42.803,31	Σ 254.967,08	$2.380,35	Σ $263.416,19
	Seine et Marne	$2.269,55	$38.847,68	$55.205,76	$12.753,96	Σ 106.807,40	$658,29	Σ $109.735,24
	Moselle	$2.529,78	$37.525,91	$39.929,22	$13.405,05	Σ 90.860,18	$656,27	Σ $94.046,23
France	Loiret	$2.282,44	$32.356,32	$47.484,54	$8.479,89	Σ 88.320,75	$959,72	Σ $91.562,91
	Garonne (Haute)	$1.181,39	$13.383,03	$33.696,42	$5.982,99	Σ 53.062,43	$397,90	Σ $54.641,72
	Val d'Oise	$1.786,19	$14.365,86	$21.511,59	$8.636,91	Σ 44.514,36	$455,35	Σ $46.755,90
	Charente-Maritime	$693,50	$16.081,36	$15.050,41	$2.384,07	Σ 33.515,83	$232,40	Σ $34.441,73
	Somme	$599,72	$8.743,05	$18.589,77	$1.214,85	Σ 28.547,67	$407,89	Σ $29.555,28
	Val de Marne	$969,42	$14.230,87	$9.628,08	$3.126,42	Σ 26.985,36	$523,34	Σ $28.478,12
	Loir et Cher	$713,38	$9.775,88	$10.665,56	-	Σ 20.441,44	$318,92	Σ $21.473,74
	Pas de Calais	$558,77	$3.629,47	$5.704,89	$1.214,85	Σ 10.549,21	$234,94	Σ $11.342,92
	Sum	Σ $63.406,78	Σ $899.260,71	Σ $1.311.933,10	Σ $342.381,90	Σ 2.553.575,71	Σ $27.035,22	Σ $2.644.017,71
United Kingdom		$76.630,04	$1.162.980,29	$1.598.217,48	$521.644,89	Σ 3.282.842,66	$32.239,51	Σ $3.391.712,21
Canada		$103.377,85	$615.440,40	$935.616,29	$270.245,70	Σ 1.821.302,39	$53.164,62	Σ $1.977.844,86
Australia		$138.690,63	$2.853.819,45	$5.004.548,42	$993.682,14	Σ 8.852.050,00	$70.259,95	Σ $9.061.000,58
United States		$256.422,07	$3.417.457,74	$4.289.925,90	$1.292.475,90	Σ 8.999.859,53	$133.507,91	Σ $9.389.789,51
Sum		Σ $700.759,96	Σ $9.952.759,56	Σ $14.520.584,04	Σ $3.844.801,05	Σ 28.318.144,65	Σ $339.772,61	Σ $29.358.677,22

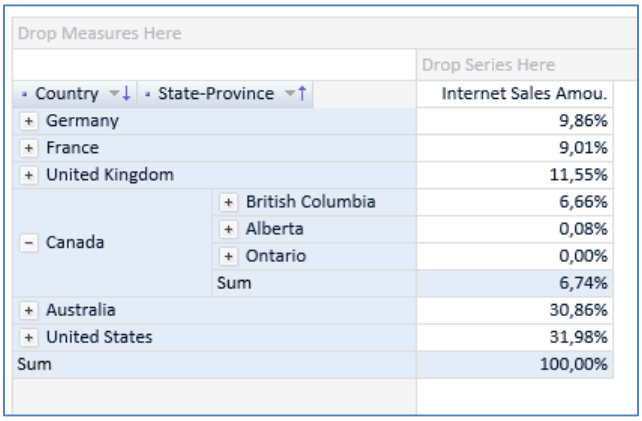


Drop Measures Here		Country ↓	State-Province ↑					
		Germany	France					
			Seine (Paris)	Nord	Seine Saint Denis	Essonne	Yveline	Ha
Category	Subcategory	Internet Sales Amou.	Internet Sales Amou.	Internet Sales Amou.	Internet Sales Amou.	Internet Sales Amou.	Internet Sales Amou.	Inte
Accessories		$62.232,59	$13.160,02	$9.894,27	$9.894,58	$5.243,89	$5.561,12	
Bikes	Mountain Bikes	$1.003.800,98	$186.654,01	$131.668,22	$127.047,32	$83.601,34	$89.671,50	
	Road Bikes	$1.380.342,85	$276.410,85	$194.250,41	$176.574,67	$149.604,96	$137.141,12	
	Touring Bikes	$424.370,52	$57.671,49	$50.586,48	$61.540,26	$38.033,73	$34.547,64	
	Sum	Σ $2.808.514,35	Σ $520.736,35	Σ $376.505,11	Σ $365.162,25	Σ $271.240,03	Σ $261.360,26	
Clothing		$23.565,40	$5.829,43	$5.000,82	$4.422,92	$2.813,26	$1.743,42	
Sum		Σ $2.894.312,34	Σ $539.725,80	Σ $391.400,20	Σ $379.479,75	Σ $279.297,18	Σ $268.664,80	

3.12. Grid values in percentage

While analyzing in Grid view, it is possible to see values expressed in percentage for each member on the Categories or Series axis. Percentage could be shown for each row total, sum of all members on Series axis, or for column total, sum of all members on Categories axis.

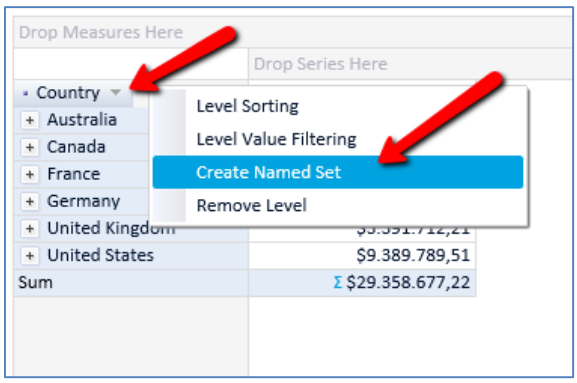
To select percentage view, right click on the Grid empty area. After menu shows up, click on the “View Rows Percentage” or “View Columns Percentage” action.



Drop Measures Here		Drop Series Here
Country ↓	State-Province ↑	Internet Sales Amou.
Germany		9,86%
France		9,01%
United Kingdom		11,55%
Canada	British Columbia	6,66%
	Alberta	0,08%
	Ontario	0,00%
	Sum	6,74%
Australia		30,86%
United States		31,98%
Sum		100,00%

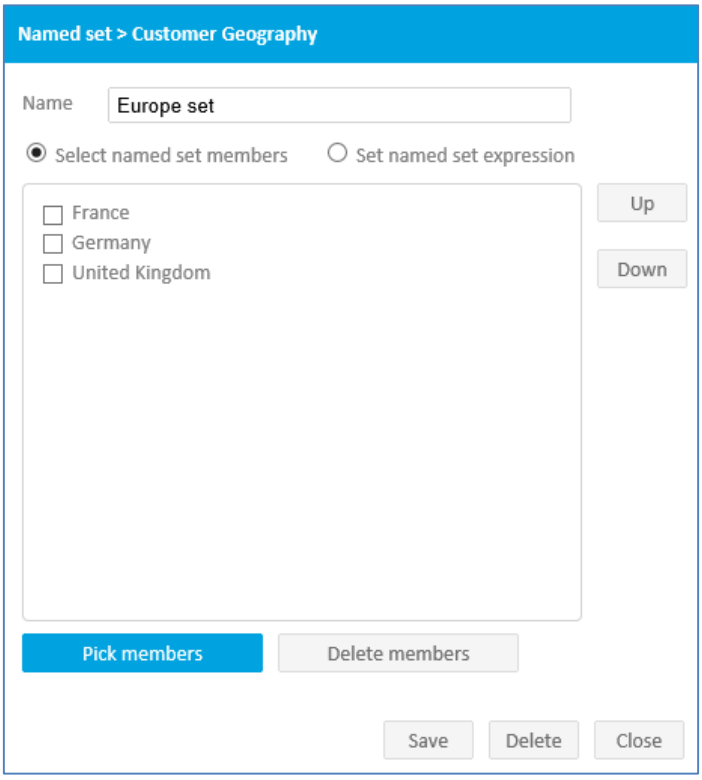
3.13. Create and manage ad-hoc User Named sets

While analyzing data with grid analysis, any user could use OLAP database defined Named set or create ad-hoc "User Named Set" that will be stored in Kyubit Business Intelligence application and could be reused in different analyses and shared with other users using Kyubit BI software. To create ad-hoc "User Named Set" drag dimension hierarchy to any of grid axes, click dimension hierarchy arrow and from hierarchy context menu select "Create Named Set". After saving User Named Set, Cube metadata tree will be refreshed to include new User Named set.



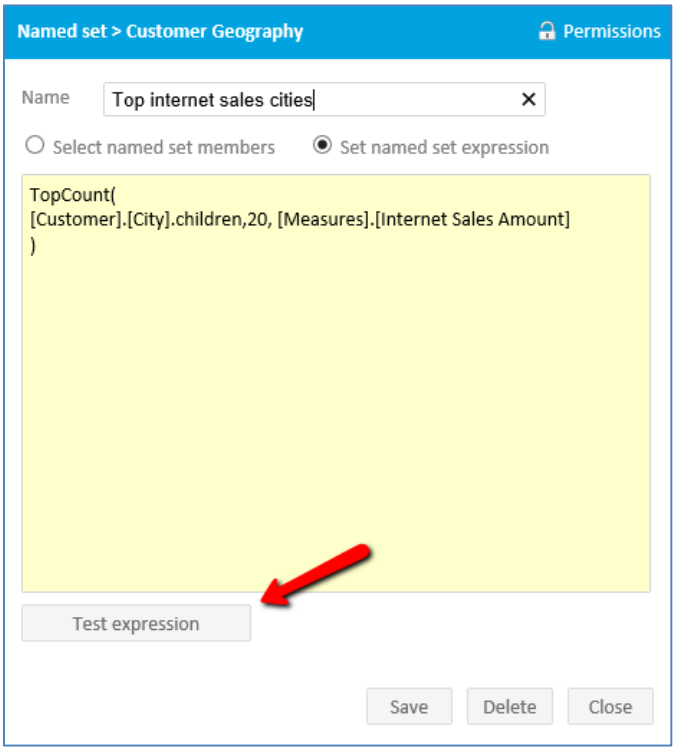
3.13.1. Create Named Set by picking members

To create named set with static members of certain dimension hierarchy, select "Select named set members", click "Pick members" and browse through dimension hierarchy or use search members to find members for named set.



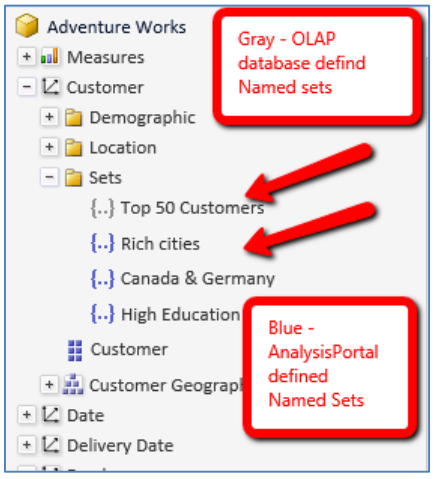
3.13.2. Create Named Set by expression

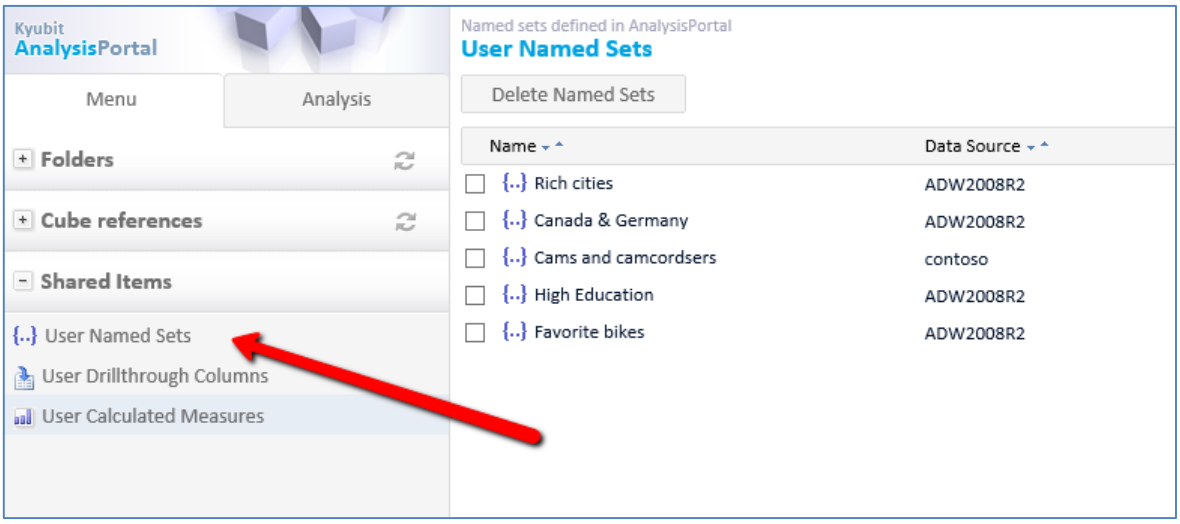
To create dynamic set of named set members, select "Set named set expression" and enter MDX expression that will be used to dynamically return members evaluated by expression. Select "Test expression" to validate MDX expression input. After saving named set, every time named set is used, expression will be executed in the analysis scope to return members and use within analysis.



3.13.3. Edit existing User Named Sets

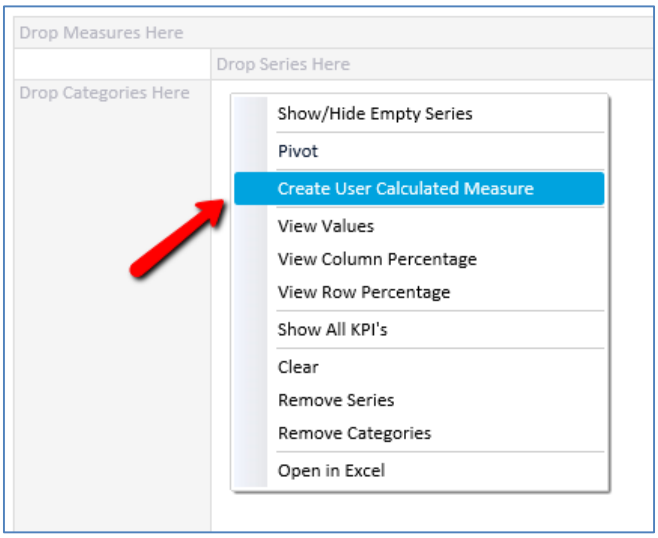
While in grid analysis, authorized users could edit existing User Named Sets by right mouse click on User Named set in Cube metadata structure tree or in Main Menu -> Shared Items -> User Named Sets.



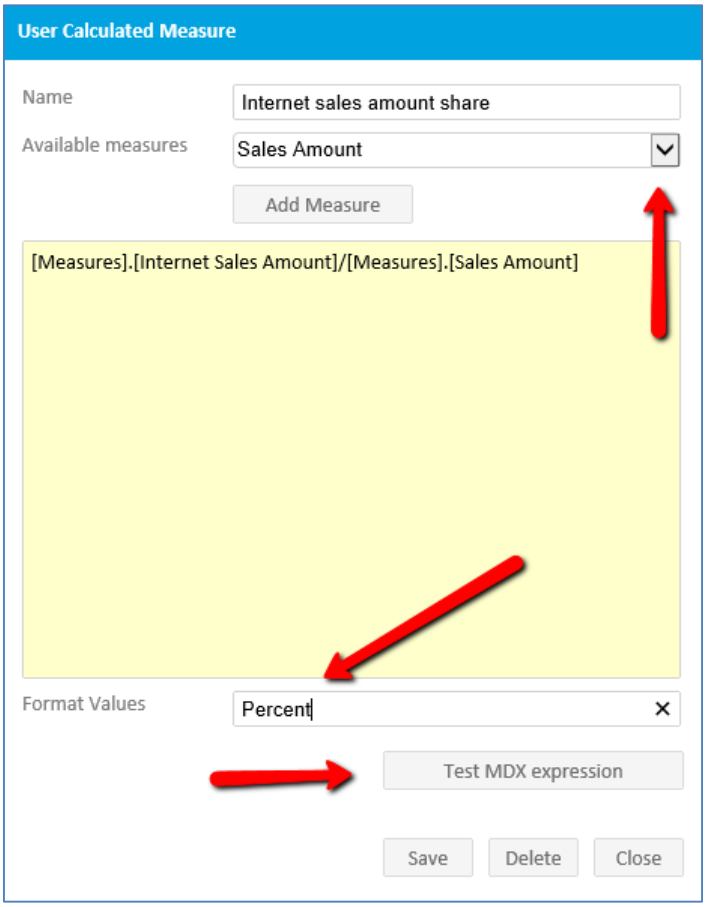


3.14. Create and manage ad-hoc User Calculated Measures

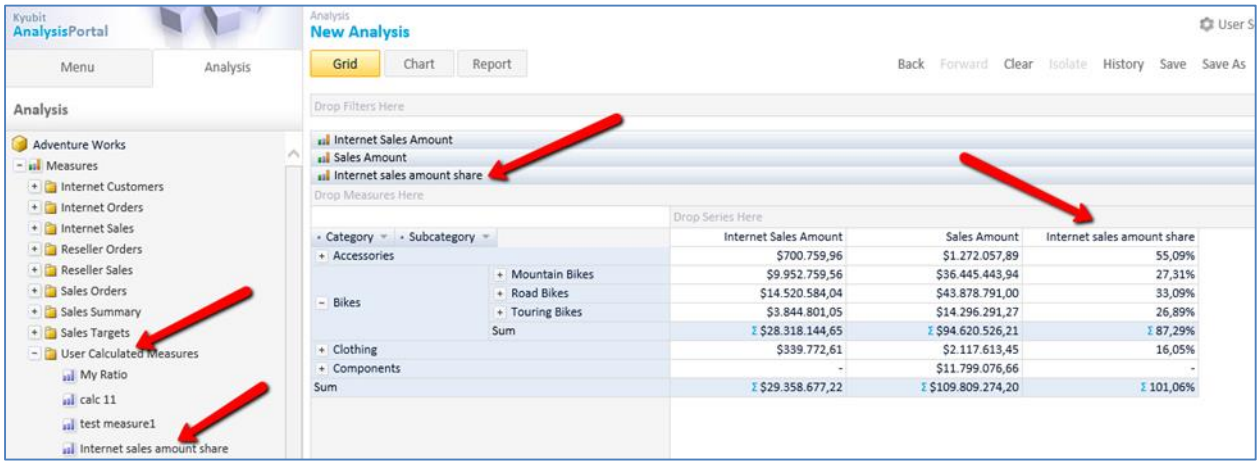
While analyzing data with grid analysis, any user could use OLAP database defined calculated measures or create ad-hoc "User Calculated Measures" that will be stored in Kyubit Business Intelligence application and could be reused in different analyses and shared with other users using Kyubit Business Intelligence software. To create ad-hoc "User Calculated Measure", right-click grid analysis area and select "Create User Calculated Measure".



Enter MDX expression that will be used for User Calculated Measure. Select measures and click "Add Measure" to add measure unique name to expression. After you form complete expression, validate expression by selecting "Test MDX expression". Enter appropriate MDX value for "Format values", for example "Standard", "Currency", "Percent" or any other valid MDX format values expressions. (Check official MDX documentation for "Format values" parameter)

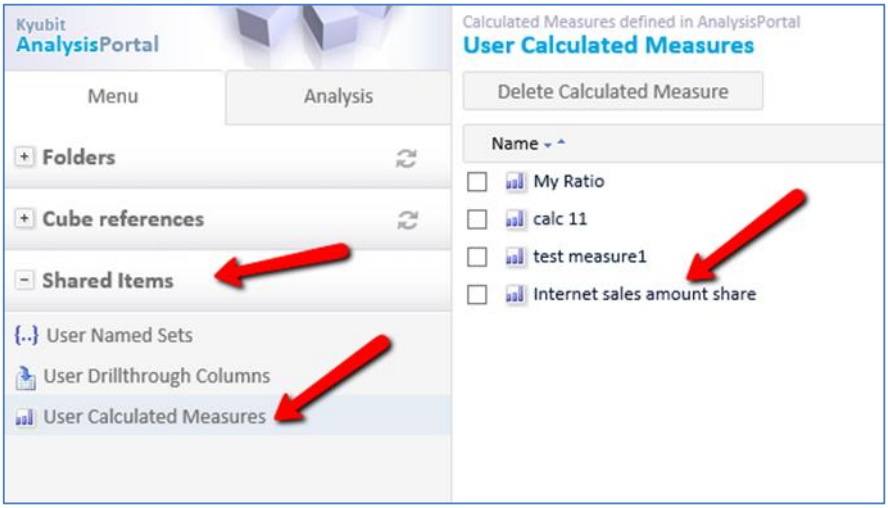


After you create User Calculated Measure, Cube metadata tree will be refreshed to show new User Calculated Measure which then could be used in analysis.



3.14.1. Edit existing User Calculated Measures

To edit existing User Calculated Measure, right-click User Calculate Measure in Cube metadata tree while in grid analysis and select “Edit User Calculated Measure” or go to Main Menu -> Share Items -> User Calculated Measures.



3.15. Save analysis state

In Grid or Chart view, after every analysis action, it is possible to save current state of analysis and run it again from the Kyubit Business Intelligence maps. By default, when saved, analysis will be located in “My analysis” folder, visible only to user who created analysis. Existing analysis could be saved under different name, using “Save As” option. To run (analyze) again same analysis, open Folders, then My Analysis map and click on desired analysis.

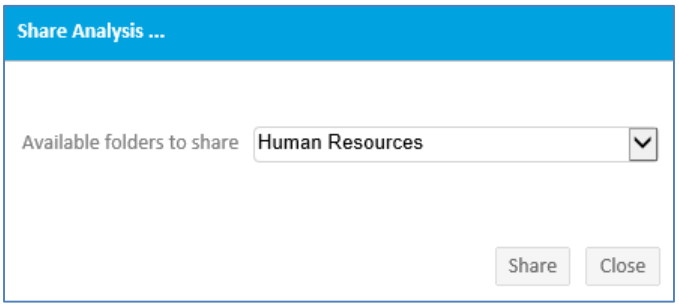
3.16. Share analysis

To make analysis visible to other people, open existing analysis and select “Share” option available in the top right corner. Select one of the available folders and click “Share” button. From now on current analysis will be located in designated folder and will not be visible in “My analysis”. Shared folder does not mean that this analysis could be visible to everyone, but only to users with permission for a particular folder. Furthermore, users with given permissions on folder will see that analysis with given name exists, but when they try to

execute one, same users additionally must have permissions in OLAP database itself to successfully run analysis.

Typically, folders would be created to separate analysis for different business units, sectors or teams, to separate points of interest and appropriately assign permissions.

Option to share analysis is available in Grid and Charts view, if analysis is previously saved.

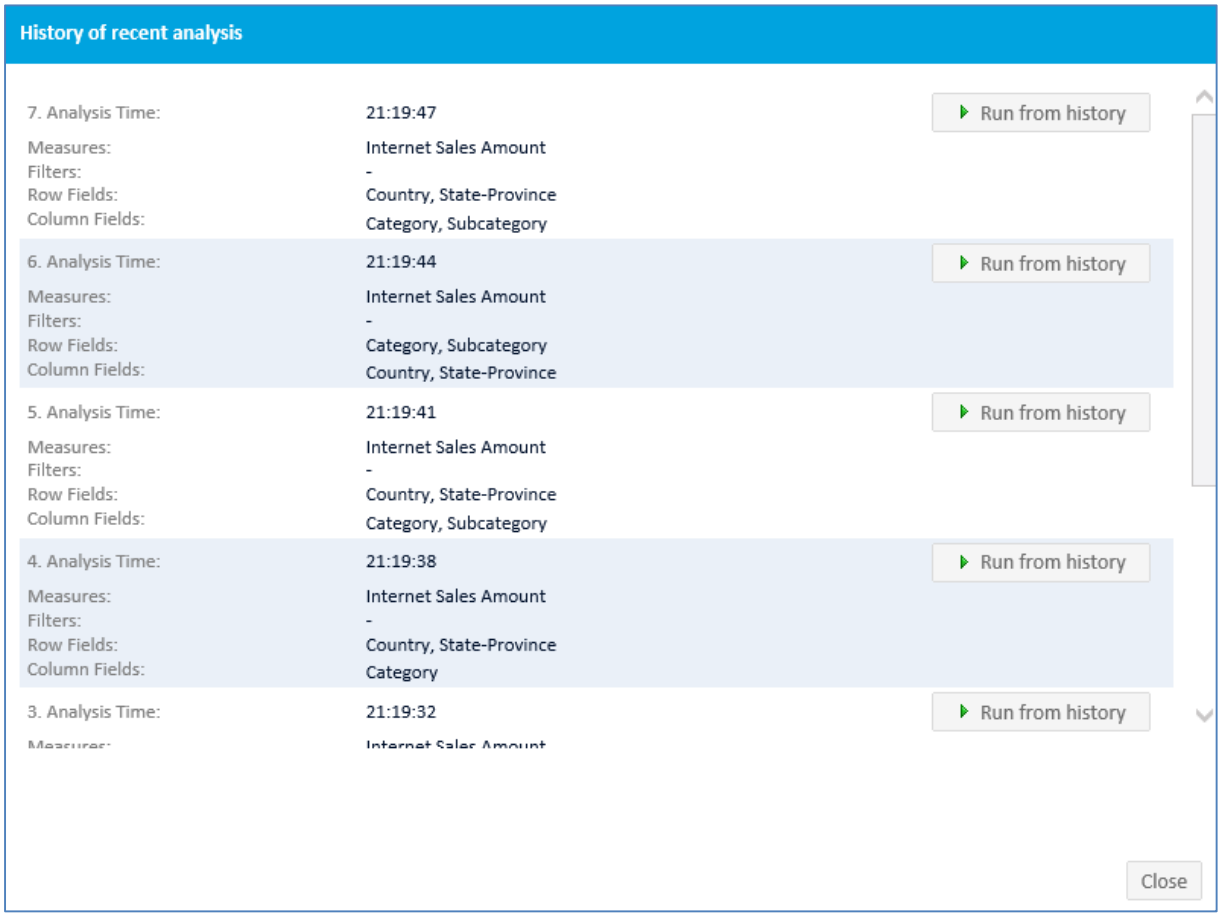


3.17. Analysis history, move back and forward

After every analysis action in Grid or Charts view, analysis state is saved in memory and could be used to “Back” or “Forward” functionalities, which would reproduce analysis state from memory.

Additionally, user can select “History” option and see all available analysis states (up to 10), that exists in memory and could be run again, either by “Back” and “Forward” option or by explicitly clicking on green arrow beside each analysis state in history panel. History panel additionally shows basic elements of certain analysis state: measures, filers, category and series dimension hierarchies and time of execution.

Analysis history is reset with each new analysis (Clear action).



4. Chart Analysis functionalities

To analyze data visually, switch analysis view to Chart view. Chart view and Grid view show same analysis data following the concept that first dimension hierarchy on the Categories axis in Grid view will be show on categories (X axis) in Chart view, values for each measure will be shown on Y axis and finally first dimension hierarchy on Series axis in Grid view will be shown as Series in Charts view.

In Grid analysis it is possible to select more dimension hierarchies for each axis. Chart view will accept (show) only first dimension hierarchies for both axes.

While doing Chart analysis, Grid analysis is also refreshed in the background, so user could combine both views to execute desired analysis and to apply desired actions. It is the same set of analysis data. If you switch to Grid view, you will see that analysis values for your actions are automatically reflected in both analysis views.

Chart analysis could show up to 3 measures. Each measure will be shown on separate chart, one above other. Unlike Grid analysis, Chart analysis uses right-click-context menu that pops up and show available actions to select elements from cube structure and to perform particular analysis action.

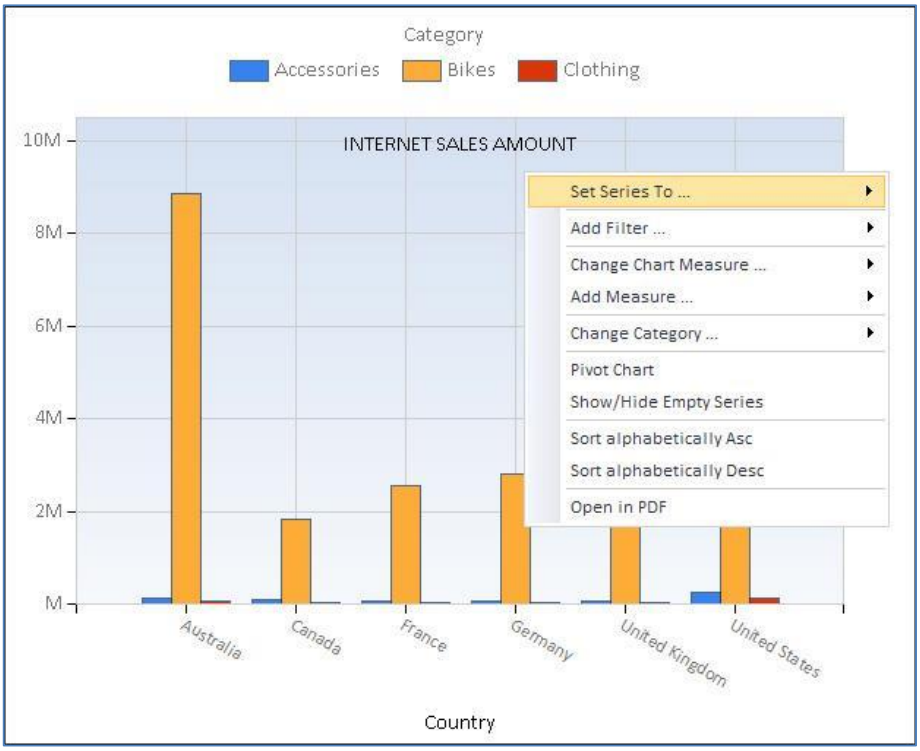
4.1. Categories

To start Chart analysis, at the minimum, dimension hierarchy for Categories has to be selected. To select particular dimension hierarchy for Categories, Series or Filters, first menu will show available dimensions, and after click on certain dimension, other menu pops up with all available dimension hierarchies for previously selected dimension. Category dimension hierarchy members will be shown on X (horizontal) axis.

To change category, right click on empty chart area and select “Change Category” action from menu. Select dimension and dimension hierarchy for the Category axis.

4.2. Series

To set Series dimension hierarchy, right click on empty chart area and select “Set Series” action from menu. Select dimension and dimension hierarchy for the Series axis. Series dimension hierarchy members will be shown above chart with different color for each Series member.



4.3. Change or add measure

It is possible to change current measure in Chart view or add new measures (Up to 3). To remove certain measure, please use grid view, removing measure is not supported in Chart view.

To change or add measure, right click on empty chart area and select “Change Measure” or “Add Measure” action from menu. Select measure group and then particular measure.

While working with multiple measures, chart will be displayed one above other, so that Category members vertically line up for measure comparison.

4.4. Pivot chart

To switch members from Categories to Series and vice versa, right click on empty chart area and select “Pivot” action from menu.

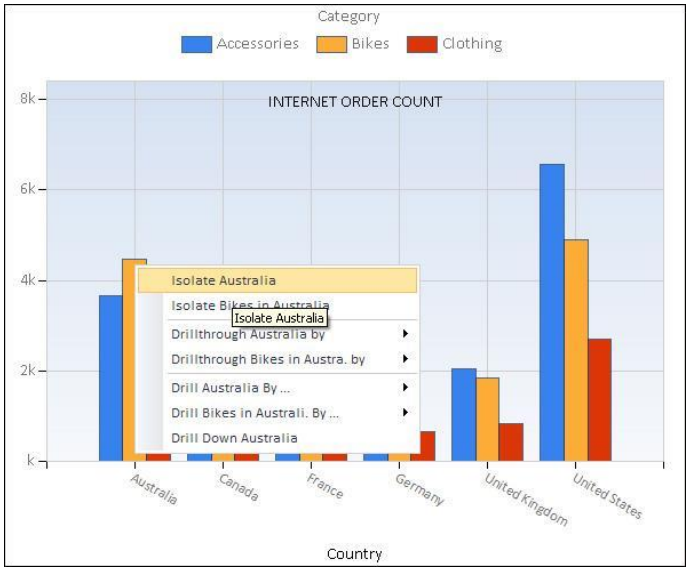
4.5. Isolating

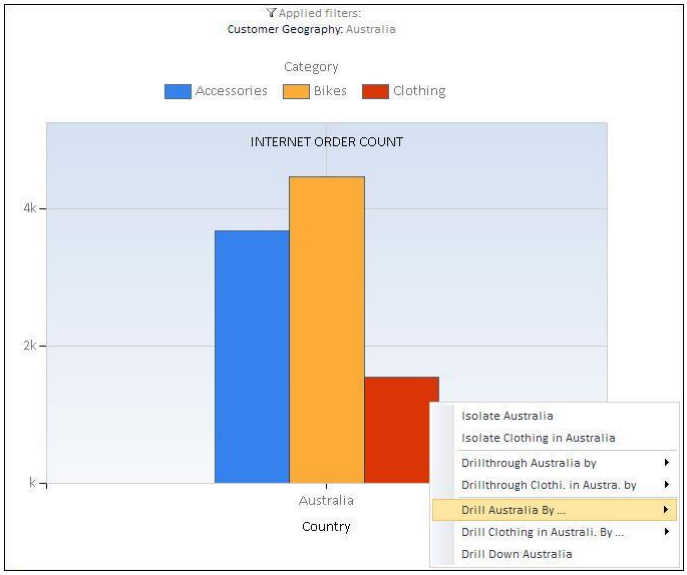
To isolate certain member values right click on the member values (Column, Bar, Line, etc.) and select Isolate action. Note, that it is possible to isolate category members or if exists series member within category member.

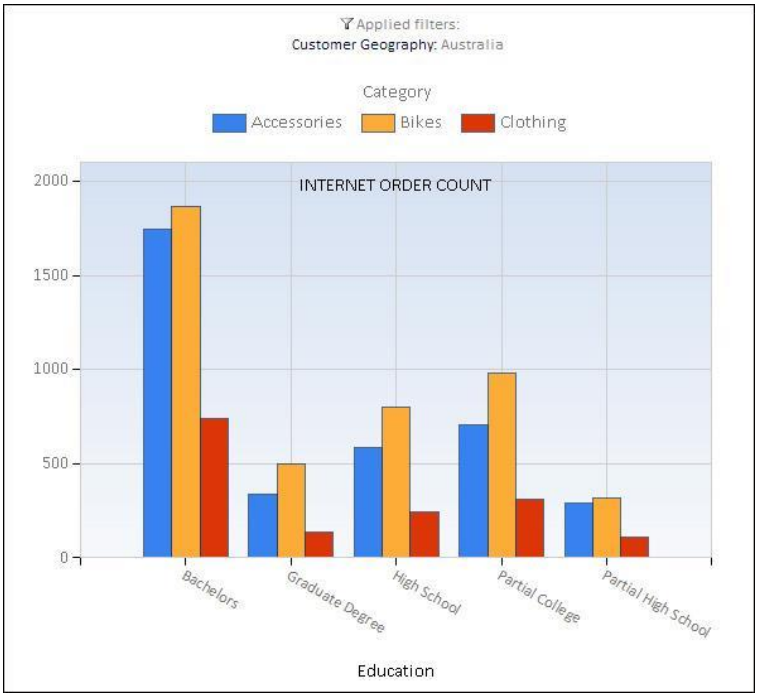
To isolate series member, right click on the series legend (above chart) member and select isolate action. Isolate action will set addition filter for your analysis.

4.6. Drill category member values (Slice)

To further analyze data and go “deeper” into desired point of interest for certain category member, right click on the member value (Column, Bar, Line, etc.) and select “Drill” action, and select “Slice” dimension hierarchy that will used to slice current values. Selected category member will be automatically isolated and set in filters. “Slice” dimension hierarchy will become category dimension hierarchy. Note, that if series exists, it is possible to “Slice” category member or series member within selected category member.



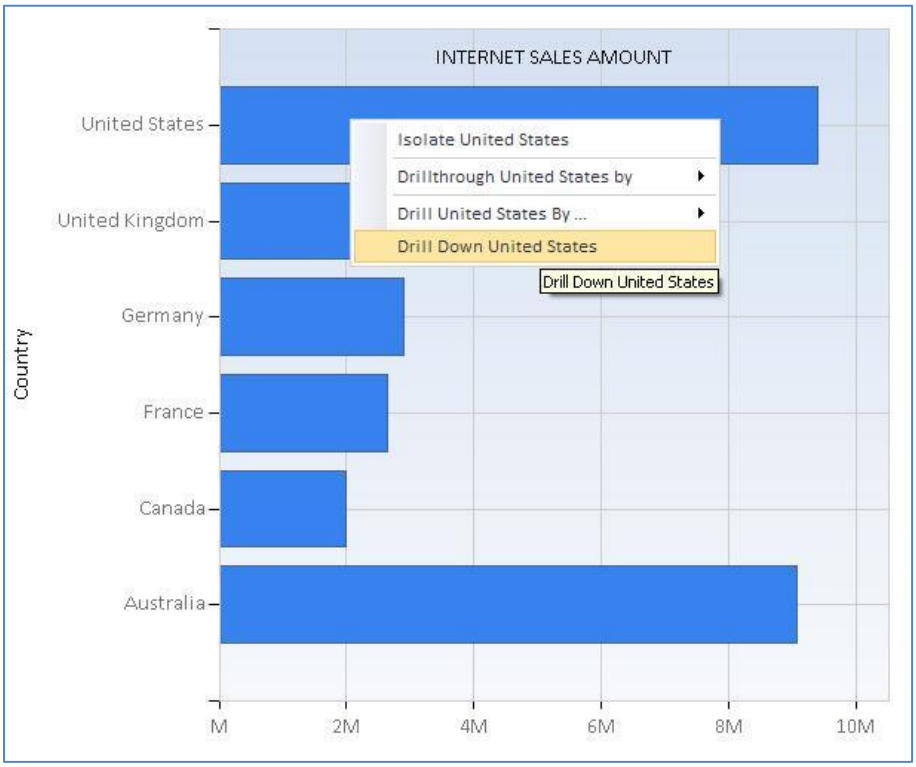


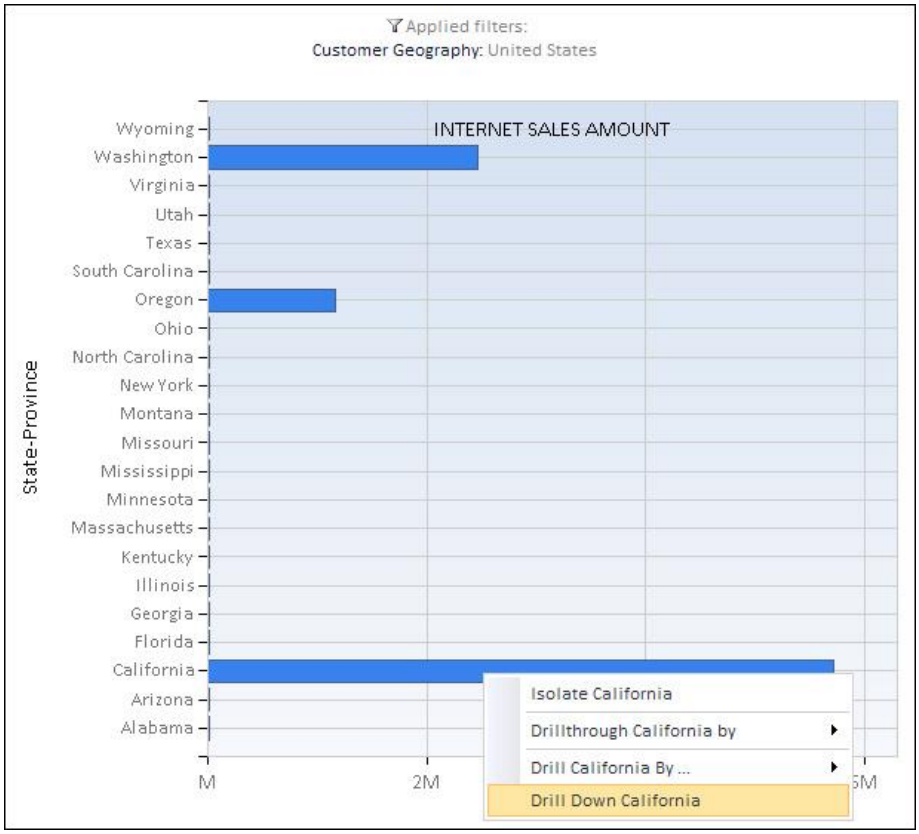


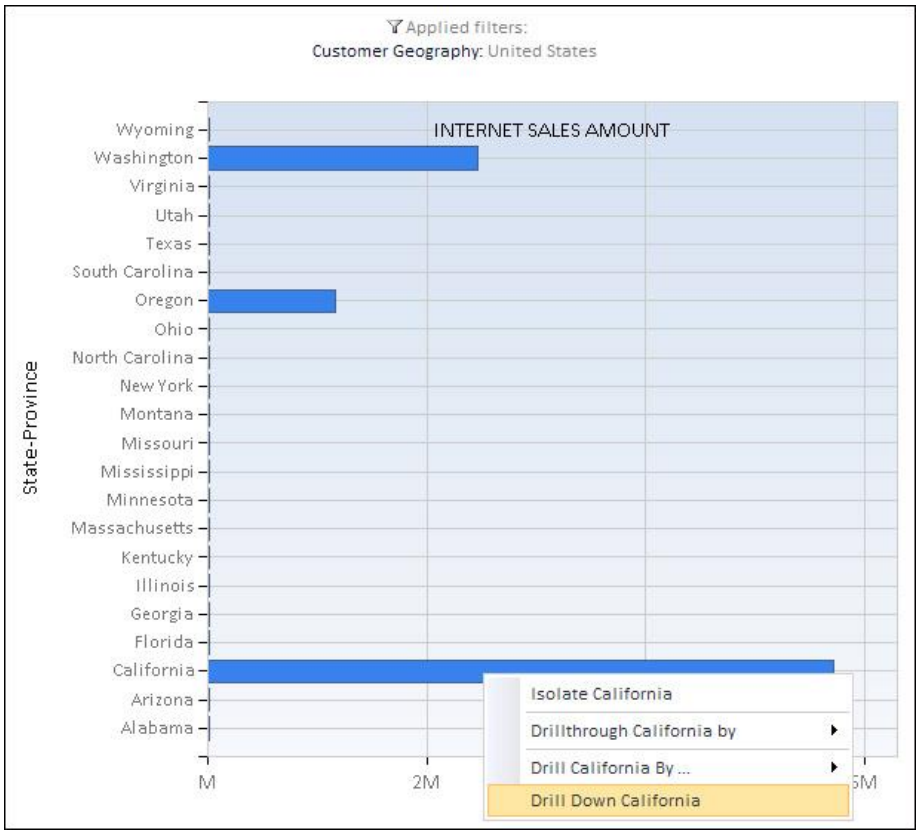
"Slicing" category member values could be repeated as many times you like.

4.7. Drill down

If category dimension hierarchy consists of more levels “Drill down” option will be available in the action menu. Drilling down will replace dimension hierarchy with its child level. For example, Country to State or State to City. Right click on the member value (Column, Bar, Line, etc.) and select “Drill Down” action.







4.8. Chart visuals

There are 6 different and independent visual elements, which could be set up to optimize visualization and perception of your analysis data. User should try several combinations to find most appropriate visual elements, which best suits for given analysis. Changing chart visuals, does not impact analysis data/values in any way.

4.8.1. Chart Types

There are 14 different chart types that could be selected for any analysis.

- Lines
- Splines
- Bars
- Stacked Bars
- Stacked Bars 100
- Columns
- Stacked Columns
- Stacked Columns 100
- Areas
- Stacked Areas
- Stacked Areas 100
- Pie
- Doughnut
- Radar

4.8.2. Palette

Defines color sets that would be used to show chart values.

- Brigth
- Grayscale
- Excel
- Light
- Pastel
- EarthTones
- Semitransparent
- Berry
- Chocolate
- Fire
- SeaGreen
- BrightPastel

4.8.3. Theme

Defines background color for the chart area.

- Blue
- White
- Warm

4.8.4. Enable 3D view

Apply 3D view for given chart analysis and defined chart visuals.

4.8.5. Semi-transparent option

Value elements (Lines, Columns, Bars, etc.) could be visually semitransparent above the chart area.

4.8.6. Show values option

Values could be presented with numbers beside each member value element

4.8.7. Pie/Doughnut details

For pie and doughnut chart types, special setting is provided to support different value presentation options, due to these chart type specifics.

5. Report view

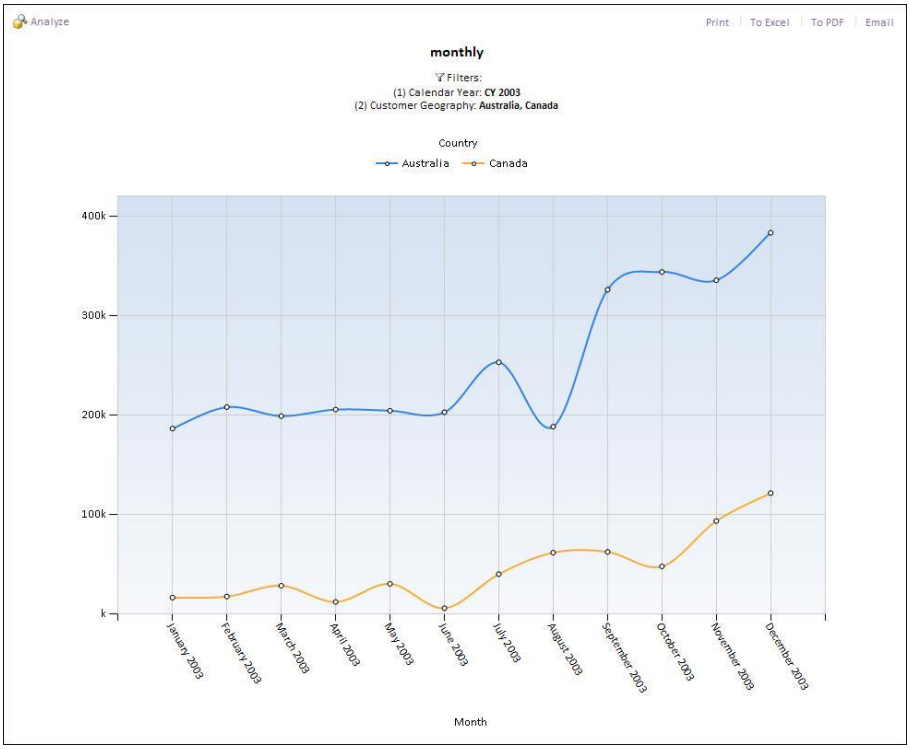
After analysis gets shape and data we want, we often want to show it to other people. Many people we would like to show analysis are not familiar with OLAP and analysis technology concepts. To get analysis view that would be as simple and straightforward as possible, showing only business valuable data without all actions, cube structure etc., we switch to “Report view” that would show only final analysis data.

Report view hides almost all Kyubit Business Intelligence interface (header, menu, etc.) and show plain analysis data elements, which are ready to show to other people or send directly to printer:

- Analysis name
- Analysis description (if exists)
- Grid results data (if opted)
- Chart result image (if opted)

In Report view, following actions are available:

- Update Analysis details (name, description)
- Select to show Grid, Chart or both
- Send to print
- Export to Excel
- Export to PDF
- Switch back to Grid or Chart view



6. Exporting options

While analyzing, there are two exporting option always available:

- Export to Excel file (.xlsx format)

Grid data and chart image will be exported to excel cells with related analysis elements.

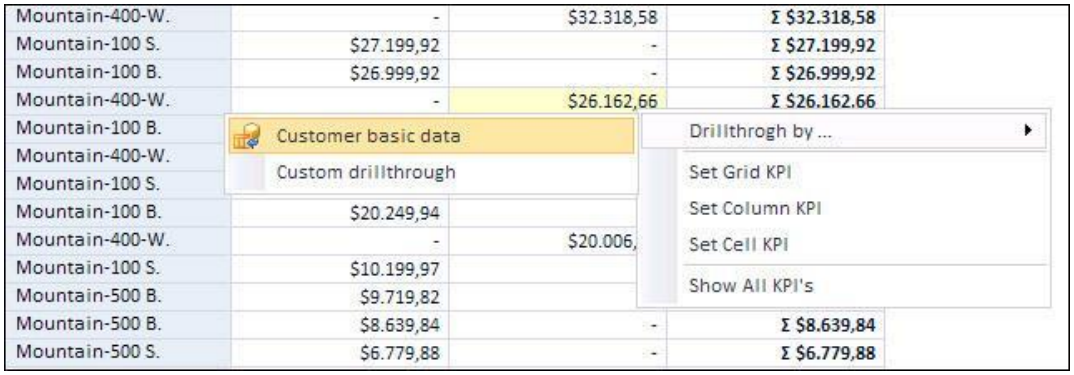
- Export to PDF file

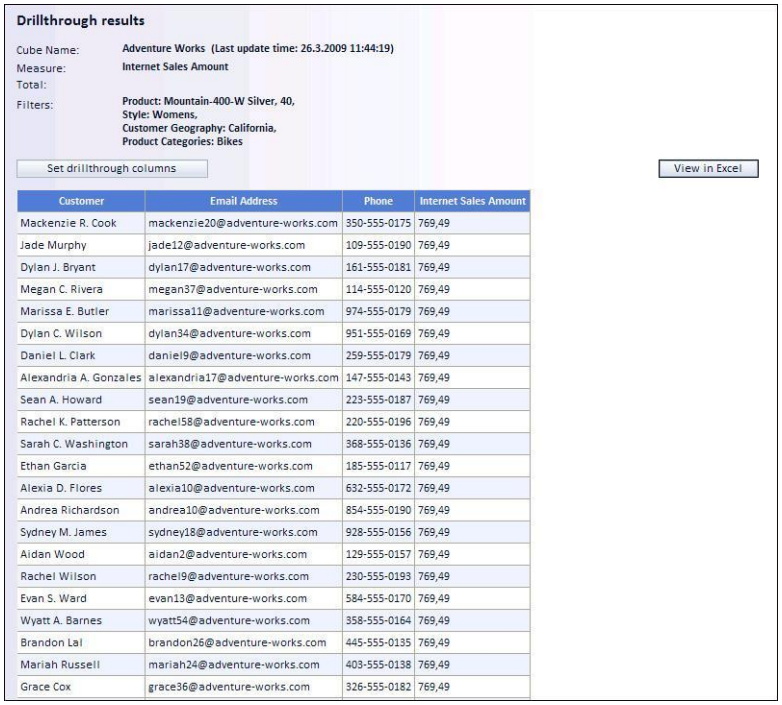
Chart image will be exported to PDF file with related analysis elements.

7. Drillthrough features

Usually, analysis means exploring aggregated values for some business subjects. Drilling and slicing functionalities will narrow analysis to particular point of interest. But, at certain moment we all want to see exact information, who, when and what, for aggregated chunk of data. For example, with analysis we found that certain product is best selling product in some city in last quarter of the year, but now we are very interesting to see details. Show me the names, dates and other purchasing details available in the OLAP cube structure. Drillthrough action gives us possibility to see details for given analysis values. Drillthrough action is available in Grid and Chart view and can be executed over some values already exists in our analysis. In the Grid view, right click on the cell will give us Drillthrough options or right click on the Chart value elements (Lines, Columns, Bars, etc.) in the Chart view.

Note, that drillthrough actions for certain users could be restricted by OLAP database permissions.





Drillthrough results

Cube Name: Adventure Works (Last update time: 26.3.2009 11:44:19)
Measure: Internet Sales Amount
Total:
Filters: Product: Mountain-400-W Silver, 40,
Style: Womens,
Customer Geography: California,
Product Categories: Bikes

Set drillthrough columns | View in Excel

Customer	Email Address	Phone	Internet Sales Amount
Mackenzie R. Cook	mackenzie20@adventure-works.com	350-555-0175	769,49
Jade Murphy	jade12@adventure-works.com	109-555-0190	769,49
Dylan J. Bryant	dylan17@adventure-works.com	161-555-0181	769,49
Megan C. Rivera	megan37@adventure-works.com	114-555-0120	769,49
Marissa E. Butler	marissa11@adventure-works.com	974-555-0179	769,49
Dylan C. Wilson	dylan34@adventure-works.com	951-555-0169	769,49
Daniel L. Clark	daniel9@adventure-works.com	259-555-0179	769,49
Alexandria A. Gonzales	alexandria17@adventure-works.com	147-555-0143	769,49
Sean A. Howard	sean19@adventure-works.com	223-555-0187	769,49
Rachel K. Patterson	rachel58@adventure-works.com	220-555-0196	769,49
Sarah C. Washington	sarah38@adventure-works.com	368-555-0136	769,49
Ethan Garcia	ethan52@adventure-works.com	185-555-0117	769,49
Alexia D. Flores	alexia10@adventure-works.com	632-555-0172	769,49
Andrea Richardson	andrea10@adventure-works.com	854-555-0190	769,49
Sydney M. James	sydney18@adventure-works.com	928-555-0156	769,49
Aidan Wood	aidan2@adventure-works.com	129-555-0157	769,49
Rachel Wilson	rachel9@adventure-works.com	230-555-0193	769,49
Evan S. Ward	evan13@adventure-works.com	584-555-0170	769,49
Wyatt A. Barnes	wyatt54@adventure-works.com	358-555-0164	769,49
Brandon Lal	brandon26@adventure-works.com	445-555-0135	769,49
Mariah Russell	mariah24@adventure-works.com	403-555-0138	769,49
Grace Cox	grace36@adventure-works.com	326-555-0182	769,49

7.1. Custom drillthrough

First available is „Custom drillthrough“ option, which can be selected anytime in Grid and Chart view. Right click on some value select first „Drillthrough“ and then „Custom drillthrough“ action. New „Drillthrough results“ window will open, showing elements of this drillthrough: Cube name, measures, filters, total. Total presents value for given measure, that we want to drillthrough. Filters presents all cube dimension hierarchies that were set to filters to get this results.

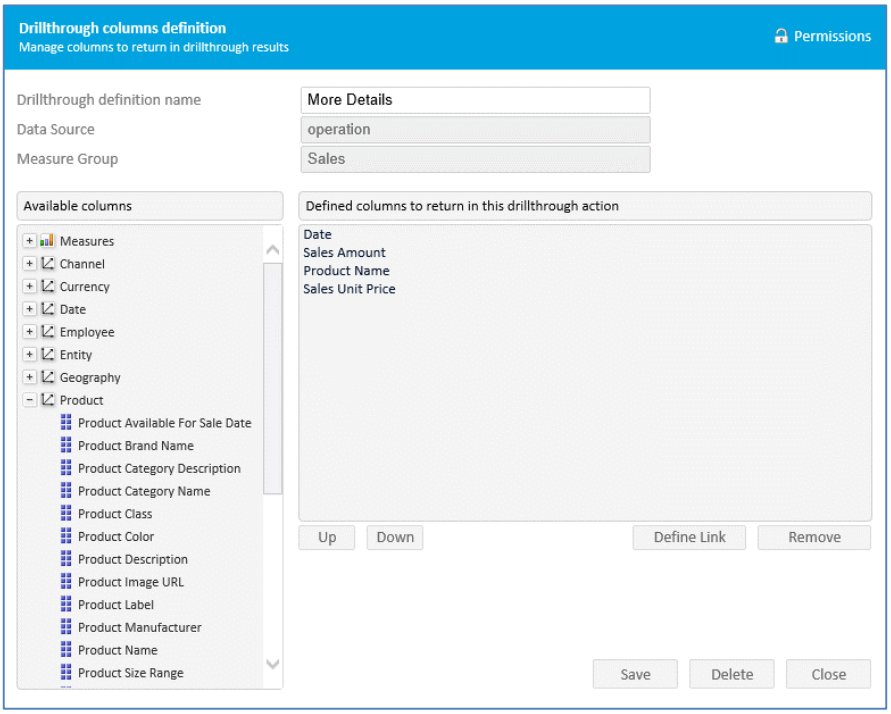
Now, we have to set which drillthrough columns we want to see by clicking on the „Set drillthrough columns“. New window will open „Drillthrough columns definition“ in which we select drillthrough columns from all available dimension hierarchies that are associated with measure group to which drillthrough measure belongs to. Which dimensions are associated with which measure group is implicitly set inside cube structure.

In the „Drillthrough columns definition“, browse for interesting dimension hierarchies (columns) on the left side of screen (Tree view) and click on interesting for your drillthrough. After we click on it, it will be shown in the list of selected columns on the right side of screen. We can add, remove or change order of columns.

After all columns are selected we would like to see for our drillthrough, „Run drillthrough“ button should be clicked. „Drillthrough columns definition“ window will close, and in window „Drillthrough results“ drillthrough will be executed and results will be displayed. Depending on the number of result items, drillthrough could take a while before is finished.

Drillthrough result table could be sorted by clicking on the column header and could be exported to Excel file.

User can redefine drillthrough columns to return, as many times he likes.



7.2. Drillthrough results links

Drillthrough results could contain links that would lead us to some site/application which would show us anything related to drillthrough data. For example, we could see for each work order its details in time tracking application which exists on our intranet.

To set up links in drillthrough results, in „Drillthrough columns definition“ while defining which columns to return in drillthrough, click on the desired column (to highlight it) and then click „Define link“ button. New window will open, „Drillthrough column link“ which allows us to define link for selected column. In the field Link (HREF) we write URL to some resource available by HTTP protocol and for variable query string element click on the some dimension hierarchy on the left.

For example, define following link URL:
http://timetracking/Workorder.aspx?Workorder={[WorkOrder].[WorkOrderId]}

Part of this URL is static and other part (between brackets) is dynamic in our drillthrough results. Finally, when we get drillthrough results we could click on each work order and open web application that shows us full details about given work order object. Of course, such application should exist, but this is just a tip how and why we could use links with drillthrough functionalities.

7.3. Saving drillthrough columns and reuse

Typically, for certain business situations we would like to get certain set of drillthrough columns. Set of drillthrough columns could contain dozens of columns and, of course, we do not like to pick them again every time we run drillthrough for given situation. Once picked and defined, we could save them in Kyubit Business Intelligence application.

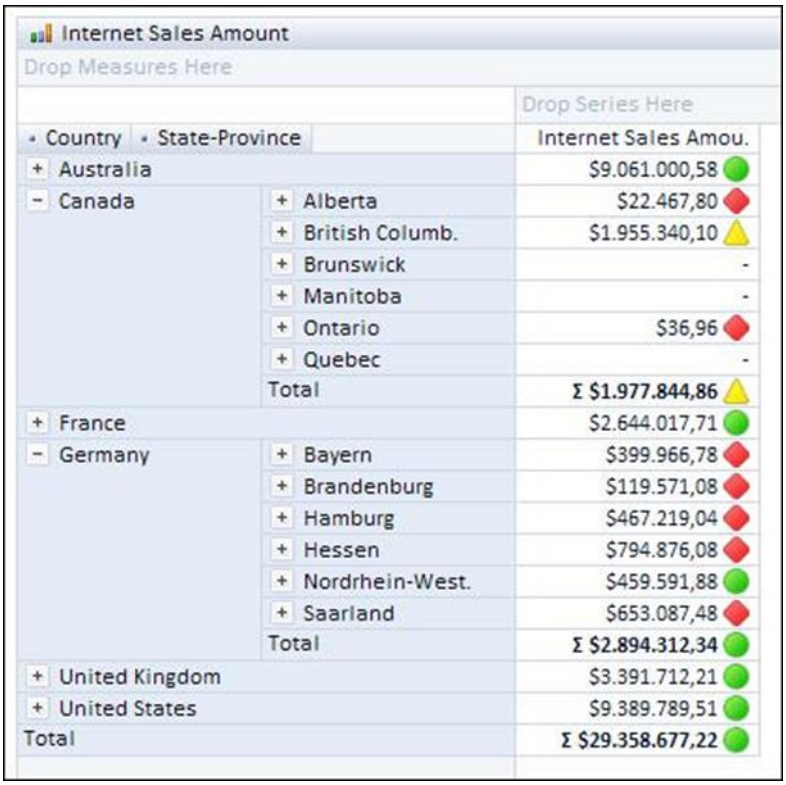
Saved set of drillthrough columns is associated with measure group and anytime in any analysis we could run drillthrough with saved set of drillthrough columns if the value we would like to drillthrough is from measure that belongs to associated measure group.

To reuse saved set of drillthrough columns, right click in the analysis on some value and within Drillthrough options, all available sets of drillthrough columns will be shown.

Outside of analysis, saved set of drillthrough columns could be viewed and edited in Main Menu under menu tab Shared Items -> User Drillthrough columns.

8. KPI functionalities

Key Performance Indicators gives us quick overview of analysis results and categorize returned values as good or bad. Kyubit Business Intelligence offers functionalities to define performance bounds for a certain analysis and shape them as KPI along desired returned values. KPI threshold can be defined for whole analysis grid level, column or cell level. KPI is saved along with Analysis and each time is executed it shows KPI for defined elements.



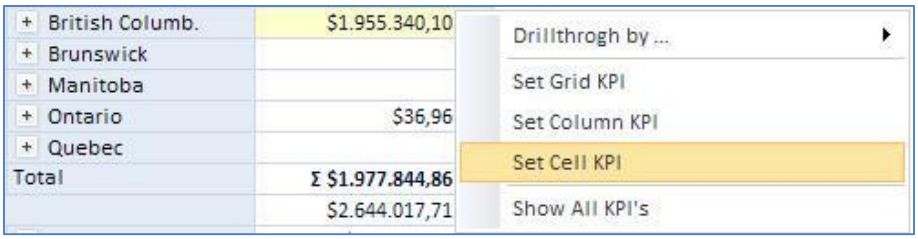
8.1. Define KPI

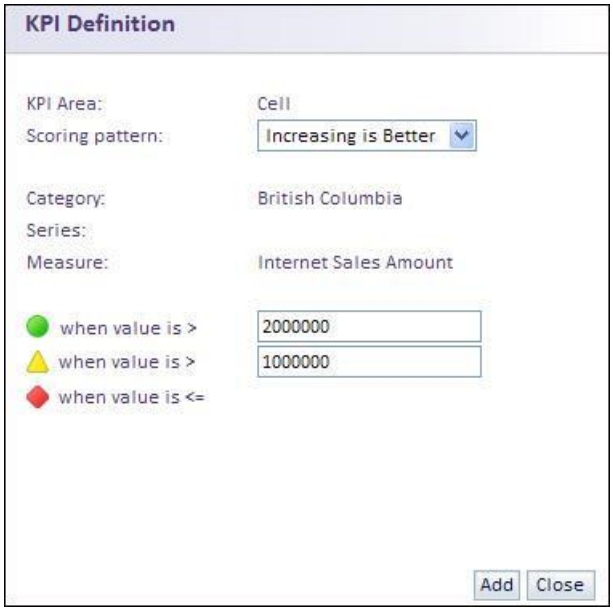
KPI can be defined and used only in analysis grid view. After certain analysis is executed and results are show in grid view, right click on any cell will show options to define KPI threshold for:

- Grid view KPI - for every value in grid KPI will be shown based on a single KPI threshold on grid level
- Column KPI - for every value in specified column KPI will be shown based on a KPI threshold on a given column
- Cell KPI – KPI will be show for a specified cell with threshold that is defined uniquely for that cell

KPI definition panel will show up with KPI details for a given element. To define a KPI it is necessary to define:

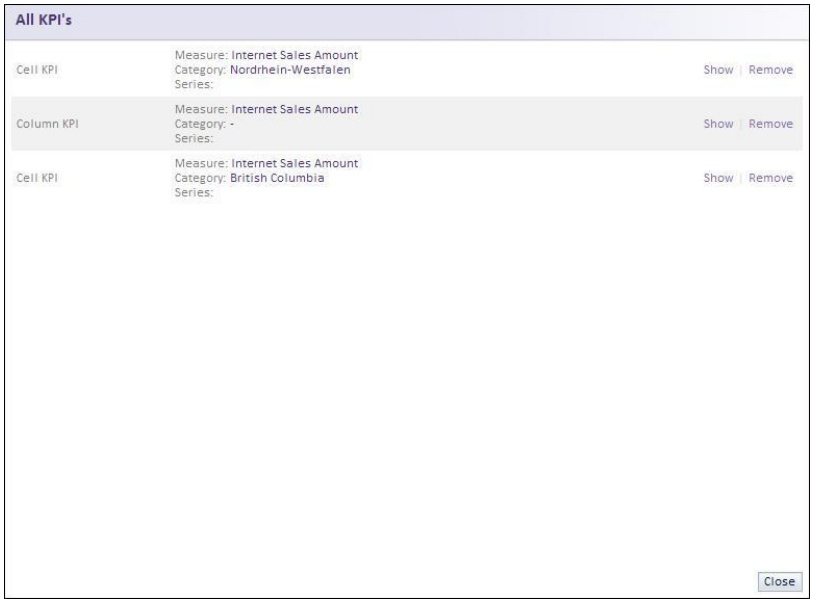
- Scoring pattern –"Increasing is better" (higher values are better), "Decreasing is better" (lower values are better).
- "Good" limit – values over this limit are show as "Success" KPI icon,
- "Bad" limit – values bellow this limit are shown with "Fail" KPI icon.





8.2. Using KPI

To see all defined KPI for a certain analysis, open Analysis, right click on empty area and select “Show all KPI’s” from context menu. A list with all defined KPI thresholds will be displayed with indicator for which grid element this KPI is associated with. To view or change KPI details, open KPI definition panel from the list.

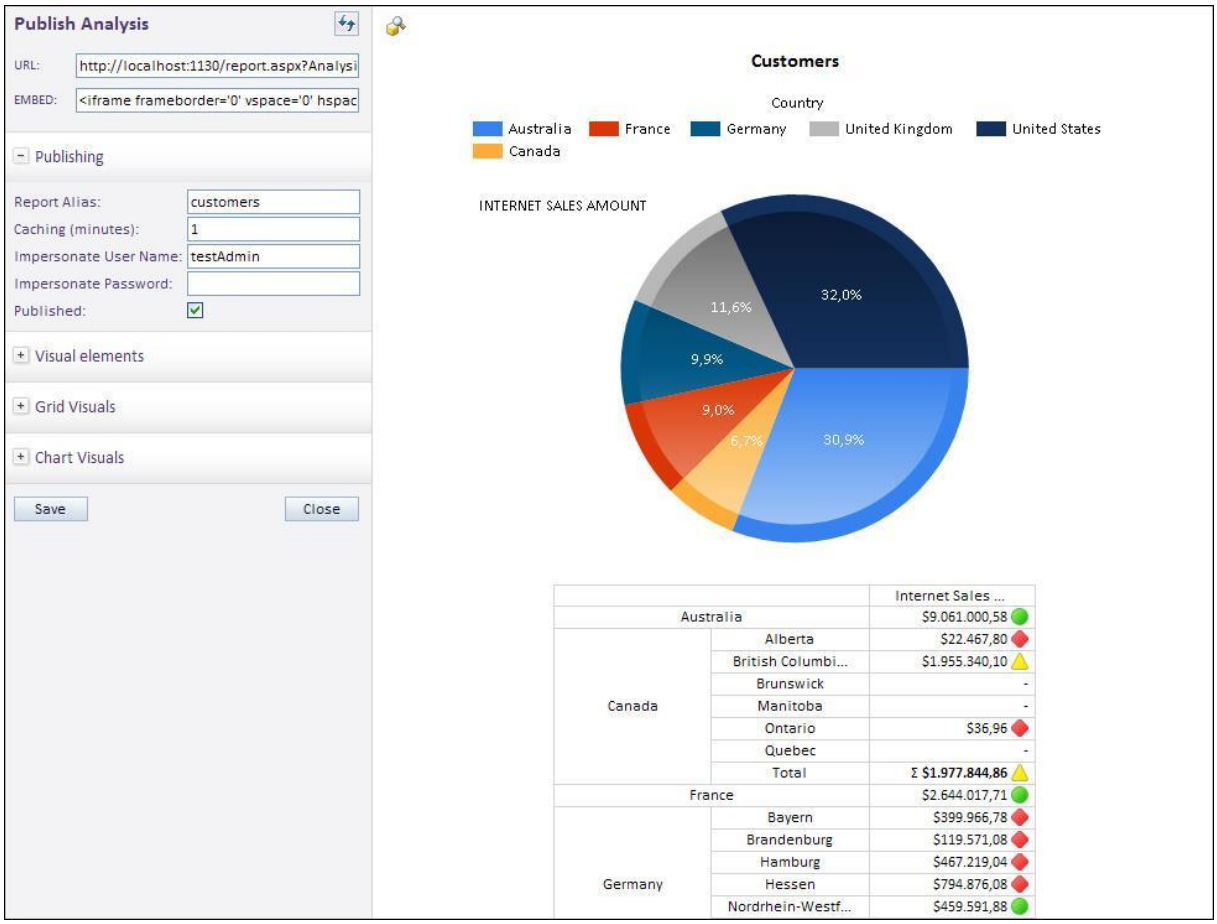


9. Publishing Features

Publishing Features provides functionalities to publish certain analysis and make it available on a designated URL for integration purposes with other web applications and services. This way it is possible to merge your analyses grids, charts and KPIs in other sites and apps, with additional analysis appearance, caching and security configuration for optimal visual and data integration.

9.1. Publish Analysis

In any moment of analyzing it is possible to publish current state of analysis. On “Report” tab of analysis, select “Publish” option and new window will appear with all publishing details. Publishing details gives a lot of options and parameters that helps us to fine tune analysis outlook and set caching, security and other options.



9.1.1. Publishing URL and EMBED string

While we are configuring publishing options, we can see the URL and EMBED string that we can use later to see published analysis.

9.1.2. Report Alias

This is unique identifier for published analysis. When we set “Report Alias” we know on which URL our published analysis will be available. For example, for “Report Alias” with value of “Alias1” URL will be http://KyubitBI/report.aspx?Analysis=Alias1

9.1.3. Caching

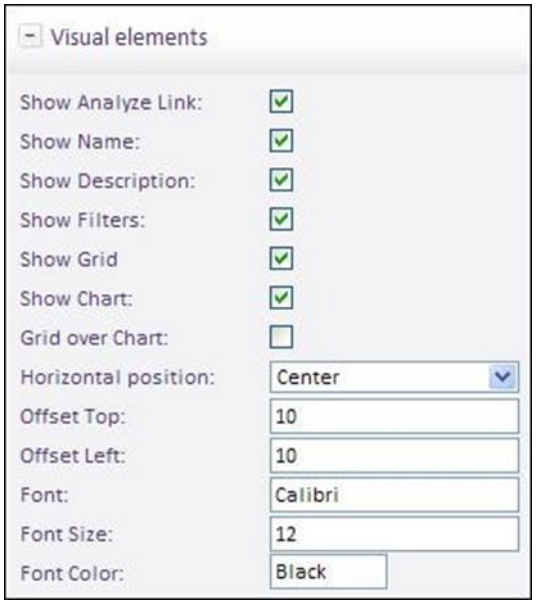
It is possible to set up caching time of published analysis in minutes. This way users on some external portal / site will see analysis from the memory without need to directly connect to OLAP data source every time someone hits page with given analysis, and thus, speeds up the whole experience with published analyses.

9.1.4. Impersonate

If many people would request published analysis, and we are not sure if all of them have necessary OLAP permissions to see all analysis elements, it is possible to impersonate request for published analysis. In this way, we will use one windows user name and password that we are sure has all required OLAP permissions to connect and provided published analysis.

9.1.5. Visuals

“Visual elements”, “Grid Visuals” and “Chart Visuals” provides us lot of visual elements we can customize while publishing analysis. We will configure which elements to show or hide, fonts, colors, alignments and other elements to fine tune published analysis appearance.

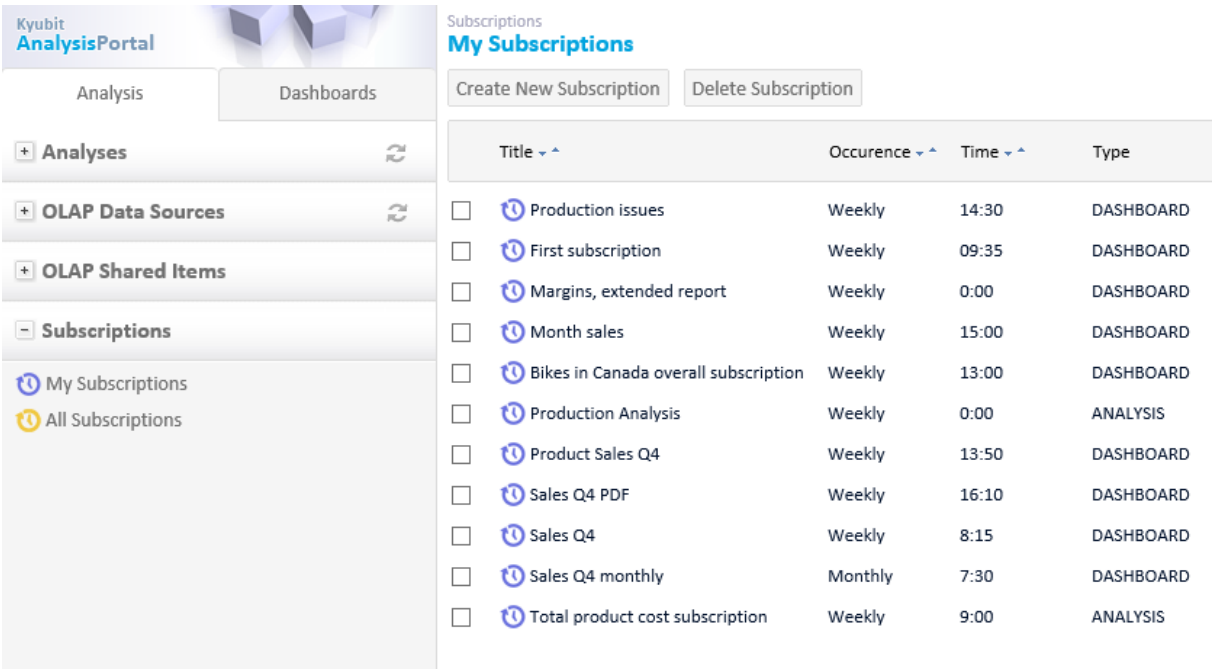


10. Subscriptions

Important aspect of Kyubit Business Intelligence analysis usage is to deliver analysis report to users using email subscriptions, which contain OLAP analysis data in form of HTML with embedded analysis image. Every user of Kyubit Business Intelligence with at least 'Read' permission has privileges to make a subscription to OLAP analysis and receive analysis report on email within scheduled time of delivery.

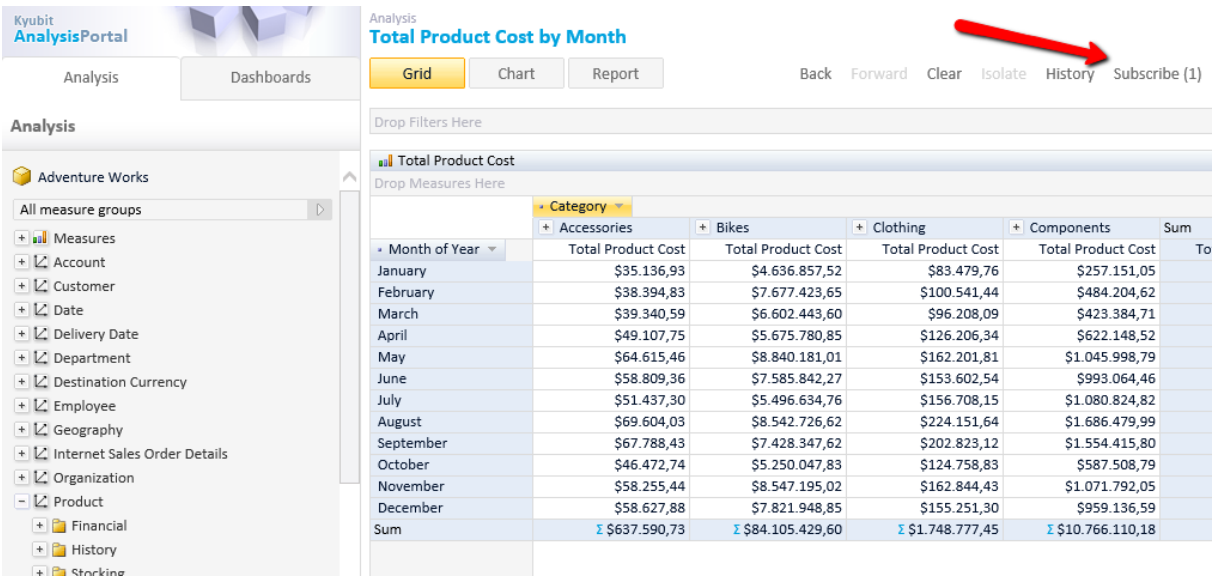
10.1. My subscriptions

Every user can see all his own subscriptions (Analysis and Dashboards) in Kyubit Business Intelligence, where all his subscriptions could be managed.

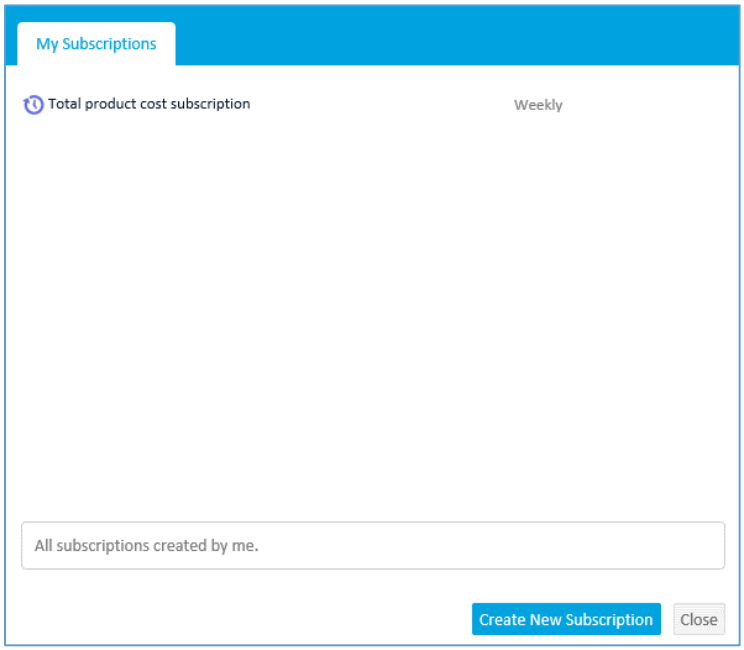


10.2. Subscriptions within analysis

When user opens certain OLAP analysis, he can immediately see if he already has some subscriptions created to the analysis.

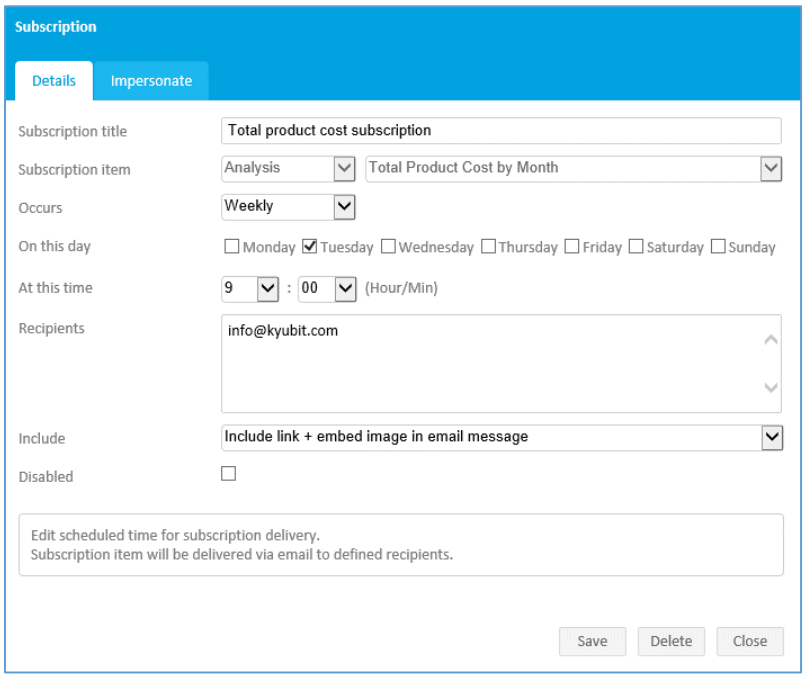


By click on "Subscribe" link, form with existing subscriptions of current user will be displayed with option to create new subscription, edit or delete existing.



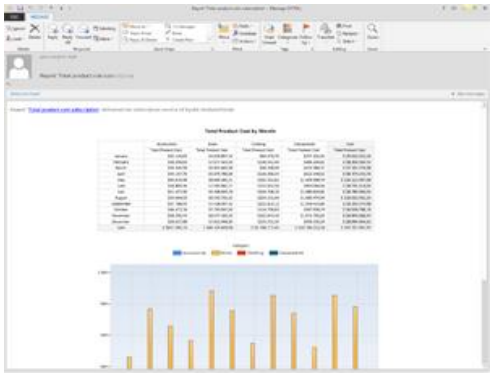
10.3. Subscription details

There are several subscription settings that could impact the way users are receiving subscriptions.



- **Subscription title**, sets the name that will appear when delivering dashboard/analysis inside email message.
- **Subscription item**, selects Kyubit Business Intelligence content (Analysis or Dashboard) to deliver within subscription. User can subscribe to all content with at least 'Read' permissions.
- **Occurs,** defines scheduled time to deliver subscription. There are three different time scheduling categories:
  - **Weekly,** set the week days to deliver subscription
  - **Monthly,** set the month days to deliver subscription
  - **Once,** set single day to deliver subscription
- **Time,** sets time within day to deliver subscription
- **Recipients,** list of email addresses to deliver subscription (separated by semicolon)

- **Include,** type of delivered content
    - **Only link** to Kyubit Business Intelligence analysis
    - Link + **embedded analysis image** (user immediately sees analysis image when opens email message)



    - Link + **PDF dashboard document** (applicable only for dashboards)
- **Disable,** all subscriptions marked disable will not be delivered at scheduled time.